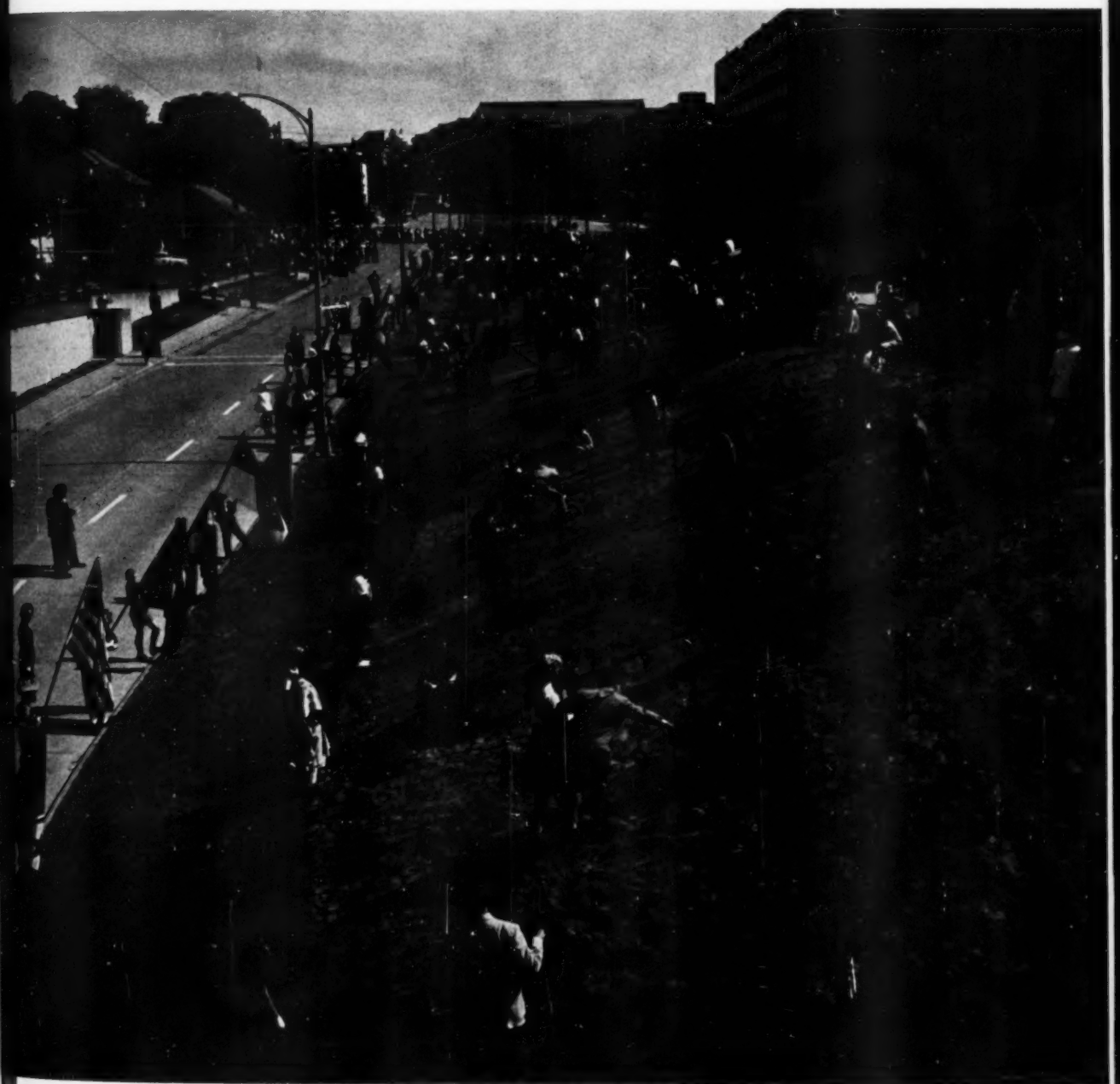
American
FORESTS
The Magazine of Forests, Soil, Water, Wildlife, and Outdoor Recreation
NOVEMBER 1960 **50 CENTS**



Tree Planting Ceremony at Seattle

MANY NATIONS, ONE GOAL

SEE PAGE 10

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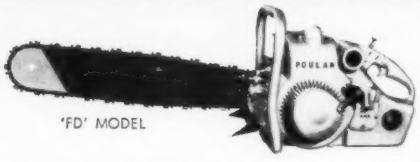

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The American Forestry Association, publishers of American Forests, *is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.*

James B. Craig
EDITOR

Betty Kindleberger
ASSISTANT EDITOR

James J. Fisher
ART DIRECTOR

Vol. 66, No. 11, November, 1960

CONTENTS

COVER—Many Nations, One Goal

It was an inspiring World Forestry Congress event. Foresters from 65 nations had paraded into Seattle's new International Friendship Grove to plant trees as a symbol and token of common aspirations for international amity and understanding. But it remained for an Indian forester and philosopher, C. R. Ranganathan, to translate the poetry of the event into words, to best express the deep feelings of those present. "Trees, especially those of great age, have at once a humbling and uplifting effect on men," he said. "In some mystical way they seem to strike a spiritual chord in us and to make an appeal for serenity, sanity, and wisdom." Cover photograph by Lee Prater, U. S. Forest Service. Inside Congress pictures by Lee Prater and Al Arnst, *The Timberman.*

AMERICAN FORESTS is published monthly by The American Forestry Association at 919 Seventeenth Street, N. W., Washington 6, D. C. Subscription price is $6 a year. Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. The Editors are not responsible for views expressed in signed articles. Second-class postage paid at Washington, D. C., and at additional mailing offices. Copyright, 1960, by The American Forestry Association.

Forest Forum

Ready to Holler

EDITOR:

I agree with Ralph Widner's article, "Parks, Politics and Philosophy," 100 per cent and then some re: parks and their future.

Now tell me where to holler! I have already directed my first attention to our Senator Hubert Humphrey. Where next can the Minnesotan do his best hollering?

Mrs. Glenn Wright
Colonial Orthopedic & Accident Center
605 Tenth Avenue South
Minneapolis 4, Minnesota

(Well, Mr. Widner, where *do* we holler? —Editor)

MRS. WRIGHT:

In urging Senator Humphrey to back our efforts in getting parks around our cities, you are trying to convert one of our best missionaries. He is an out-spoken member of our team.

The problem is not so much in the Congress but in the state legislatures. Too often we think we can solve our problems by writing to a congressman. Actually we should start at the other end of the political line. Most members of Congress will support policies in which the state government back home is interested.

I would say, therefore, that a lot of the "hollering" should come from state conservation organizations in the committee rooms of the legislatures.

We have one problem, however. One out of every ten persons in this country is a dues-paying member of a conservation organization, yet everyone seems to have his own particular interest. Seldom does a garden club share the views of the sportsman, nor do soil conservationists always agree with flood control associations. As an example, there are more than 100 organizations interested in one way or another in development of the Delaware River. Such a Tower of Babel could easily destroy the whole program.

I think the first requisite, therefore, is for all of us in conservation to get united. It is after all the loudness and number of voices that impress legislative committees. If we can do this, I know we can succeed.

My recommendation is that the strongest conservation organizations in your state band together in common cause and march on your local legislators.

As one senator admitted after the billboard legislation was passed: "The surest way to ever get laws passed around this place is to get you conservationists behind it."

Ralph R. Widner
Pennsylvania Dept. of Forests and Waters
Harrisburg, Penna.

EDITOR:

We have read with interest Ralph Widner's article, "Parks, Politics, and Philosophy," in the September issue of AMERICAN FORESTS.

We wonder if reprints of it are available. We would like to order 300 copies for distribution to the legislature and members of our State Park Advisory Council, if available at a nominal cost.

Should Mr. Widner have occasion to rewrite the article, we call his attention in the reference to Minnesota to the need for a correction. The local matching requirement of funds appropriated in an act establishing a park is only applicable in the initial land acquisition, authorized by the act. Further developments and operations cost are fully borne by the state.

We think that Mr. Widner's article is very perceptive in its content, timely in its relationship with the opening of new legislative sessions, and worthy of distribution nationwide. It can be most helpful.

U. W. Hella, Director
Division of State Parks
Minnesota Department of Conservation
Saint Paul 1, Minnesota

(Reprints ordered.—Editor)

Touché

EDITOR:

Your editorial, "Wilderness Is Where You Find It," was read with interest until I came to the sentence ". . . he gave them each a lighted candle." Faces beaming over lighted tapers may be beautiful, but what a foolish, dangerous thing to do! Where were your children's flashlights?

Editor! Read your own magazine! See page 18 (Summer of 1,000 Fires).

Mrs. Robert W. Heinle
2517 Bronson Boulevard
Kalamazoo, Michigan

EDITOR:

The fact that this editorial was extremely readable does not mitigate the fact that you were wrong in 1) failing to dress down that theological student; 2) making a strong complaint to the proper authorities about such practices. . . .

Henry W. Norton
Cleveland, Ohio

EDITOR:

I enjoy your editorials but I think it was VERY BAD to give your children lighted candles—even if it had been raining for two days. Think of all the families who read your magazine and the effect that one statement could have on many children!

(Mrs.) Charles Thompson
Hartford, Conn.

Lightning Rod Inquiry

EDITOR:

I am not a member of your association, but read your magazine regularly, since my son, Gordon E. Smith, lives at the same address.

Recently, in a special magazine, *The Living World*, I believe, I read an article about the many forest fires caused by "dry" lightning, and according to your last issue lightning has certainly caused great loss this summer in western timber. It occurred to me that tall, steel poles spaced throughout our national parks would be the answer to conducting the bolts safely to the ground. Then, I reasoned, surely someone has thought of that, and there is probably a very good reason why they are not used.

Should there be no valid reason against the use of steel poles as a lightning conductor, will you please pass the idea along? It would seem that one-half of the $100 million spent annually fighting forest fires would put up many poles.

If there is a reason why steel poles are not used, will you please satisfy the curiosity of a curious woman and explain?

Thanks so much.

Mrs. Roland T. Smith
604 South Glover
Urbana, Illinois

(Lightning rods are not used on national forests because of the excessive cost. Since lightning rods are only effective in a radius area equal to their height, the number that would be needed would be almost astronomical. However, on some valuable estates, such as Mount Vernon, there is a lightning rod in each tree. —Editor)

Letter from "Ding"

EDITOR:

Possibly my concern about the Kiabab National Forest area is unique, but if the rest of your readers are equally worried about what is going on out there, then a story on the subject would be justified.

Encroachment by the grazing interests on the Kiabab area has been rumored about for some time. Just how serious that encroachment and others may be is something on which authentic information would be welcome. At a time when the producing oil wells in the U.S.A. are restricted to part-time production there seems to be little reason for the invasion of the Kiabab area to pioneer another oil field. The status of this prospect would be interesting to me, at least, but it may be that all these factors have been already publicized and I have just happened to miss them. I would respect your judgment as to the value of an analytic story on the Kiabab course.

Most of the Outdoor Writers of America and the technicians and conservation-minded people have complained of their inability to cover all the publications containing important conservational material which come to their desks. The suggestion

has been made that there should be a sort of *Reader's Digest* of conservation publications to do for natural resources what the *Reader's Digest* does for literature. I note, with interest, that AMERICAN FORESTS has broadened its field of coverage and I am not sure that you aren't the right agency to introduce a bibliography of current publications in AMERICAN FORESTS. Somebody is going to undertake that job one of these days and it might as well be you.

Jay N. Darling
Register and Tribune
Des Moines 4, Iowa

(The area referred to by Mr. Darling is the game refuge created in the North Kiabab by President Theodore Roosevelt. On the basis of a preliminary investigation, we believe this situation is worthy of a story based on careful fact-finding. An effort will be made to obtain one. As we get it here in Washington, the regional forester turned down an original application by oil companies to prospect for oil on the refuge. Shortly after the World Forestry Congress, the regional forester reconsidered on the basis of new overtures from the oil interests in which they promised to follow certain conservation practices, which practices were stiffened even more by regulations insisted on by the regional forester. As a result of this switch in signals, a hue and cry has been raised by powerful Southwest fish and game interests. This unrest has apparently been heightened by certain disclosures in the press that the Republican candidate for President concurs with Governor Fannin and Senator Goldwater, both of Arizona, that an attempt should be made to turn over certain public lands to the states (although we are now convinced in our own mind that these plans, whatever they may be, are leaving the national forests scrupulously alone. Needless to say, conservationists are watching this whole situation with very keen interest). Recalling a wildlife conference we attended several years ago in New Orleans where wildlife experts vehemently declared that oil and wildlife, particularly water fowl, do not mix, we sounded out Washington experts on this and were told that in this case the chief wildlife asset involved is the mule deer. At least one Forest Service official—who admitted his knowledge of the situation was sketchy — expressed the horseback opinion that, in all probability, mule deer (which are abundant down there) would suffer no ill effects if the prospecting regulations are sufficiently stringent. On the grazing situation, we were not able to obtain too much information here, although there are those AFA members who do contend the whole grazing picture on public lands is about due to be re-examined. As to the *Conservation Digest* idea—it sounds intriguing—but would the conservation public support it? Perhaps others might care to comment on this interesting idea. —Editor)

Too Much—Too Fast?

EDITOR:

I think your World Forestry Congress issue of AMERICAN FORESTS was the best I have ever seen, especially those highly-professional articles by European and Scandinavian foresters. Which raises a point in my mind. When foresters write like foresters—clearly and professionally—it is interesting how many other things seem to fall into line even though they stick to their subject. For instance, an article on the relation between trees and soil becomes a strong defense for the importance

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of proper soil care even though the author sticks closely to his subject—trees. On the other hand, we have this business of multiple use and more and more you tend to wade into all manner of things, always holding the banner of multiple use aloft. My thought is this. Has it ever occurred to you that you might be able to teach more true multiple use by sticking closely to your subject—trees—than you can by covering so many different fields in a sometimes, of necessity, sketchily reportorial manner? Trees, when all is said and done, are a pretty big subject and more and more I wonder if we conservationists aren't trying to cover too much too fast. Think it over.

Henry W. Hughes
Chicago, Illinois

(But do we have the *time* to do otherwise?—Editor)

Profile of a Year

EDITOR:

. . . By way of "obeying that impulse," I wish to comment on the splendid article by Mr. A. L. Bennett, "Profile of a Year—1910," September, 1960 issue. I was four years old in 1910; however, for some reason I felt a nostalgia when reading this story. This was due, without doubt, to parental influences that remain with me from that impressionable age. As with Bennett, I distinctly remember my Daddy pointing out Halley's comet to me and saying, "There's something you may never see again." Other memories are not so vivid and it was gratifying to have them articulated for me by Bennett. Please pass on my compliments to Mr. Bennett for an excellent story. . . .

Harold C. Frincke
941 Temple Avenue
Knoxville, Tennessee

EDITOR:

You must be receiving many compliments on "Profile of a Year—1910," by A. L. Bennett in your September issue. It was nicely done, with good photographs, cartoons, and references to popular music of the era.

There's no better way to set the mood for a nostalgic piece than to recall to readers the popular music of the time, but it's easy to slip up a little unless one checks with a reliable reference. We agree with Mr. Bennett that we were hearing in 1910 quite a lot of "Has Anybody Here Seen Kelly?" copyrighted in 1909 by Francis, Day and Hunter, and of the lilting "Any Little Girl That's a Nice Little Girl Is the Right Little Girl For Me," Shapiro, 1910.

Not until 1911, though, did we hear "O, You Beautiful Doll," a Remick offering, and "Everybody's Doing It," copyrighted by Ted Snyder and Company. "Pretty Baby" actually didn't come along until 1916, when it was copyrighted by Remick and Company. These data all come from Mattfeld's "Variety Music Cavalcade," Prentice-Hall, 1952.

This reference doesn't list "Come, Be My Sunshine, Dearie," "You Are the Ideal of My Dreams," and "Gee! But There's Class to a Girl Like You." Is it possible that these are first lines and not titles? Perhaps Mr. Bennett can straighten us out on this.

We're in no way critical of the author's work—we just like to be neighborly with someone of similar tastes. In 1943 we read a sprightly article on cheesemaking in a dairy journal, something about growing green mold on cheese in a cave in North Carolina where conditions were propitious. We wrote the editor of the journal and he turned our letter over to the author, who proved to be the wife of a civil engineering professor at Clemson College. One thing led to another. including a lively and voluminous correspondence between Detroit and Clemson. Eventually, at an engineering conference held at the Virginia Polytechnic Institute, we met Professor and Mrs. Trively and found them both very interesting. Now, after seventeen years, we still receive a chatty Christmas letter.

We wonder if Mr. Bennett remembers with pleasure "Same Sort of Boy and the Same Sort of Girl," which Jerome Kern wrote for Julia Sanderson in "The Girl From Utah." One of Kern's best, we think, yet it never is included in Kern albums. Prewar—pre-World War I, maybe 1909-13.

D. S. Davis
Professor of Pulp and Paper Tech.
School of Chemistry
University of Alabama

(How about straightening this out, Mr. Bennett? Incidentally, Mr. Bennett is a college professor too, at Austin, Texas. —Editor)

See Christmas Letter to You

on page 41

Successful Congress

MR. HORNADAY:

On behalf of the Organizing Committee and the Secretariat of the Fifth World Forestry Congress, I want you to have our thanks for the very substantial assistance The American Forestry Association gave to the successful operation of the Congress. Thanks are due for the helpful efforts of your staff, particularly AFA Chief Forester Ken Pomeroy, over a period of many months and also for the publicity given by AMERICAN FORESTS. I express our appreciation particularly for the reception given for the foreign delegates to the Congress.

I hope that you feel, as I do, very considerable satisfaction in a successful meeting.

Richard E. McArdle, Chairman
Organizing Committee
Fifth World Forestry Congress

(Dr. McArdle was elected president of the Fifth World Forestry Congress by the delegates assembled—Editor)

Shifting Land Uses

EDITOR:

In the August, 1960 issue "Reading About Resources" discusses fairly objectively our shifting of land uses.

Our wilderness, forestry, wildlife, and farmland are all being leveled and carved out before the onslaught of the motor vehicle and its huge roadbed, which is severing and penetrating areas that should never be desecrated, destroyed or cut.

Forest ecology demands vigilance against the dangers of fire, predatory organisms, pollution, and now a new monster, the vehicle.

Leo Wilensky
Pedestrian League of America
Box 1308, Church Street Station
New York City 8, N. Y.

Reply to Mr. Green

EDITOR:

In a recent issue there appears a commentary by Duane L. Green on the article concerning multiple use by Howard Stagner. In regard to wilderness areas Mr. Green states, "Does he realize that the expanded economy of these times will not permit these lands to lie idle, even for a short time?"

Now there is some truth in this. We are fast closing down on our possibilities. We are growing poorer while we are supposed to be getting richer. According to Aldous Huxley we are behaving toward our natural resources like drunken sailors, and this seems to be a fair summary of the situation.

To use an analogy, we are like the family who has taken to booze and high living, and because we cannot make ends meet we put grandma to work.

I say to all who fall down and worship this "expanding economy"—get on your feet and look around you. If you see evidence that our penchant for production is lowering the water table of natural enjoyment, then think nothing of it for this is small damage compared to what is coming if the materialists have their way.

Let us try to assure for our children an abundance that cannot be measured by the gross national product as it is understood today. Let us try to get at the fundamental problems that are plaguing us and the rest of the world and which can be solved only to a limited extent by the approach of the materialist. If we will do this, we may someday take grandma from the production line and be the richer for it.

J. Louis Head
1115 W. Calhoun St.
Macomb, Illinois

Thank the Forester

EDITOR:

I want to let you know that your write-up in AMERICAN FORESTS on honeysuckle and kudzu control is all right. The Amino triazole and Amitrol-T actually are best suited for control of honeysuckle and the mixture of 2,4-D and 2,4-T works on kudzu. I am still working in an effort toward a more economical control of these vines. Thanks for the write-up.

Ernest V. Brender
Macon Research Center
U. S. Forest Service
Macon, Georgia

Reading about RESOURCES

By MONROE BUSH

RATHER than postpone longer the mention of a number of interesting books—some quite important—that have piled up in back-log, here are brief reports on volumes which for the most part deserve more extensive treatment, if only space permitted.

An Introduction to American Forestry, by Shirley Walter Allen and Grant William Sharpe. Third Edition, 1960. McGraw-Hill, N. Y. 466 pages. $7.95.

This thorough revision of a popular textbook takes note of new laws and new techniques that apply to efficient American forestry. A new chapter, "Beneficial Influences and Services from the Forest," gives an up-to-date emphasis to the multiple role of the well managed forest.

Log Transportation in the Lake States Lumber Industry, 1840-1918, by William Gerald Rector. Arthur H. Clark Co., Glendale, Calif. 352 pp. $10.00.

A study of "the movement of logs and its relationship to land settlement, waterway development, railroad construction, lumber production and prices" in the Lake States.

Cellulose Pulp and Allied Products, incorporating the third edition of **Wood Pulp,** by Julius Grant. Leonard Hill Book, Ltd., 9 Eden Street, N.W.1, London. 1958. 512 pp. $8.50.

A tremendously important book, **Cellulose Pulp** places all cellulose sources in their proper relationship to the over-all world resource picture. Dr. Grant offers guide lines of great benefit to all economic development planners, especially in the under-developed nations of the tropics and semi-tropics.

Light and Plant Growth, by R. van der Veen and G. Meijer. Macmillan, N. Y. 1959. 161 pp. $8.50.

A report of the basic research of two distinguished Dutch scientists into the mysterious role of light in biological processes. The text is well illustrated by both charts and photographs, and offers in its final chapter some practical information concerning the irradiation of plants.

Principles of Plant Breeding, by R. W. Allard. John Wiley & Sons, N. Y. 1960. 485 pp. $9.00.

A heavy, laboriously written college text that is packed with data. Genetics, self-pollinating and cross-pollinating principles, disease resistance, polyploidy in plant breeding—this and much, much more is offered.

Power to Produce, 1960 Yearbook of Agriculture. USDA. Superintendent of Documents, Washington 25, D. C. 480 pp. $2.25.

Editor Alfred Stefferud has done it again! The distinguished USDA annual yearbook series has been and remains the high-water mark of governmental publishing. This handsomely illustrated study of the role of physical power, product- and service-producing power, will take its proper, prominent place on the personal bookshelves of every sort of resource specialist.

Manual of Photographic Interpretation, published by the American Society of Photogrammetry, Washington, D. C. 1960. 868 pp. $12.00 for members; $15.00 for non-members.

A well-edited, copiously illustrated reference work on the increasingly useful field of aerial photography. The book is testimony to the quality of professional standards that have been developed in this new discipline within scarcely more than three decades. Photogrammetry is employed in some fashion by virtually every major aspect of America's physical life, and this book reports on these uses.

Forest and Shade Tree Entomology, by Roger F. Anderson. John Wiley & Sons, N. Y. 1960. 428 pp. $8.50.

This "guide to the scientific understanding, identification, and control of forest insects" is billed as both textbook and manual. The material is unusually well-arranged, and supplemental reading references at the close of each chapter give the serious student ample guidance. Unfortunately, the photographs are not uniformly good. This is a book for the foresters.

Financial Management of Large Forest Ownerships. Bulletin No. 66, School of Forestry, Yale University, New Haven. 1960. 124 pp. $2.00.

This compilation of papers presented at the Thirteenth Industrial Forestry Seminar, held in New Haven in January of this year, will be must-study for the executive level of big-time forestry. Able contributors include John Fedkiw, William L. Moise, Walter H. Meyer, Meade Whitaker, Henry I. Barclay, Jr.,

(Turn to page 52)

Advice Wanted

The Smithsonian Institution has been asked to consider reprinting Standley's *Trees and Shrubs of Mexico* (Contr. U. S. Nat. Herb., vol. 23, pts. 1-5, pp. 1-1721, 1920-1926), which has been out of print for years.

The Institution would welcome expressions of interest in such a reprint, the cost of which would be approximately $20.

Address inquiries to Editorial and Publications Division, Smithsonian Institution, Washington 25, D. C.

MR. BUCHANAN'S PARK

Attending campground dedication were: (left) John Buchanan, Douglas Studs, Inc.; Edward P. Cliff, assistant chief, Forest Service; Harry Berg, Rotary; Dr. William Copeland, Rotary; Robert Weitz, Rotary; Dick Setterstrom, Montana Power Co.

BIG lumber and pulp and paper companies have done a lot in recent years in opening up their holdings to recreationists. This is not so easy for the "little guy"—whose heart is often in the right place and who wants to do his share, but who is sometimes baffled on just how to go about it. This is particularly true of those operators who contract for wood from the Forest Service under sustained yield agreements. Also, these people get awfully tired of being told they are uninterested in wilderness, in recreation, in short that they are just "narrow-minded" woodsmen.

Some months ago an enterprising contractor in the West hit upon a happy idea. Why not set aside a part of his land under contract for development of a public recreation unit with all interested citizens in the area and the Forest Service co-operating? And when John F. Buchanan, manager of Douglas Studs, Inc. of White Sulphur Springs, Montana, thought of "interested citizens" he also thought of a synonymous word—"Rotary."

Buchanan started the wheels turning. He had a chunk of timber under contract on the Lewis and Clark National Forest near White Sulphur Springs. Why not convert part of it for a recreation area? The Forest Service was immediately interested and agreed. The Rotary Club of White Sulphur Springs promised to help.

With these groups co-operating, the result is the Moose Creek Campground. It was dedicated in July, 1960. It's a nice recreation area. It is also more than that; it is a symbol—perhaps a unique example—of what people of good will can do, regardless of their size, in helping to meet our mounting recreational needs.

The campground embraces about 30 acres and is divided into three parts. At one end are eight attractive overnight units. At the other end is a collection of family-type picnic facilities. In the center, and well screened from the other units, is a community area which has large picnic tables, fireplaces, and a large open area in grass to be used for community functions. Located on the Moose Creek timber access road, the campground exemplifies the compatibility of timber harvesting operations and public recreation.

In accepting the campground for the Forest Service, Edward P. Cliff, assistant chief of the Forest Service, used the term "multiple use in action" to describe the new facilities. "Here at Moose Creek Campground two major resource management programs have been nicely integrated; the harvesting of timber and the development of public recreation facilities. The community of White Sulphur Springs will benefit from both," he said.

"Congress has given us more money for recreation work in recent years," Mr. Cliff continued, "although on a scale well below the estimated requirements. Thus our recreation development has continued to fall behind the needs as the recreation use has outstripped even our most optimistic estimates for the latter years of the past decade. It is in recognition of the public need for services and facilities which the Forest Service has not yet been able to provide that this fine co-operative program of developing the Moose Creek Campground was undertaken."

Mr. Cliff emphasized that "the significance of the contribution does not end with the completion of this one recreation area. The co-operative program which it represents is one which other industries and other forest communities may well elect to undertake in their own areas. The White Sulphur Springs Rotary Club and Douglas Studs, Inc., may have built better than they knew when they started the Moose Creek Campground."

The campground project was initiated in the spring of 1959, after the White Sulphur Springs Rotary Club considered a suggestion by Douglas Studs, Inc. that its membership sponsor the construction of a campground. They resolved to undertake this project providing they could obtain outside assistance. The Forest Service was enthusiastic about the proposed undertaking and agreed to assist with the project.

The Rotary Club furnished all la-

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By ALBERT G. HALL

KEEP NATIONAL FOREST CAMPSITES SIMPLE, spacious, private, and clean, recommends Representative Joseph W. Barr of Indiana. He also urges that the people who want and will use national forest camping facilities pay their way through the purchase of an annual permit — a windshield sticker at a suggested cost of $5.

ACCESS ROADS, DEVELOPMENT, AND FINANCES are necessary to maximum public enjoyment of national forest areas, the Indiana congressman reports after a summer vacation in western national forests. In a special report to Representative George M. Grant of Alabama, chairman of the forestry subcommittee of the House Committee on Agriculture, Congressman Barr said the Forest Service "should acquire, and quickly, the land needed to bring campers from the highways to the national forest land. There is not much sense in planning campsites if there is no way to get to them."

NATIONAL FORESTS HAVE A DISTINCT PLACE IN the camping picture, according to Congressman Barr. "The state parks and to some extent the national parks are moving toward more conveniences -- showers, laundries, flush toilets, and electrical outlets for trailers. I would recommend that they be permitted to satisfy that demand and that the Forest Service sites be kept simple, spacious, and clean. I would also recommend that available funds be used to develop more campsites in especially scenic areas, rather than going deeply into attempts to flossy up existing sites."

FOREST INDUSTRY DENIES ACCESS BLOCK. ACcusations made earlier this year that private landowners were blocking access to 30 billion board feet of timber because the federal government has not been able to obtain access over private roads or lands have been vigorously challenged by both the Western Pine Association and the National Lumber Manufacturers Association. The charge was made during hearings on proposed legislation concerning rights-of-way affecting national forests. The lumbermen's groups have asked the Forest Service to substantiate and document the charge.

GRAZING LAND STUDY ASKED. IN LETTERS TO the Secretary of Agriculture and the Secretary of the Interior, Representative Lee Metcalf of Montana has proposed a study of "America's grazing lands." He urged that the study be completed by 1963 and that it include data on browse for game in addition to an analysis of livestock usage, and that it be developed "in such a manner that the future inventories and assessments of progress can readily be made."

PROJECT TWENTY-TWELVE, INTERIOR DEPARTment's long-range program for development and use of the public lands under the department's jurisdiction, has been declared late and incomplete by Senator James E. Murray of Montana, chairman of the Senate Committee on Interior and Insular Affairs. Senator Murray has requested Secretary of the Interior Fred A. Seaton to submit by January 1, 1961, "most important data needed to assure the development of sound land management policies and programs," including data on investment and operating costs and benefits, and a state-by-state analysis for short-term and long-term periods.

FOREST MANAGEMENT ON FEDERAL RESERVOIR lands under the jurisdiction of the Army Corps of Engineers is being developed in two eastern states. New Hampshire's State Forestry Department has recently been given responsibility

(Continued on next page)

for the forestry management of 3600 acres behind Franklin Falls Dam. Earlier the state forester became responsible for management of the Blackwater Flood Control Area. In addition, on the Otter Brook area the state has an arrangement to provide supervision and maintenance of recreational developments to be provided by the Federal government. In Virginia, the Corps is being urged to plant trees on idle lands acquired for the John H. Kerr Reservoir. The Corps acquired 107,000 acres, only 48,000 of which is below minimum pool elevation. In both states the state forestry association has been instrumental in stimulating the forestry programs on Corps lands: the Society for the Protection of New Hampshire Forests, and Virginia Forests, Inc.

MINING LAW PROGRESS WAS REPORTED LAST MONTH by Edward Woozley, director, Bureau of Land Management, in a speech before the American Mining Congress. Since the passage of Public Law 167 in 1955, providing for federal government management of the surface of unpatented mining claims, over five million acres of public domain lands and attendant records have been examined. Of these, about 36,400 unpatented mining claims were found as being filed prior to July 23, 1955. Under Public Law 167, the bureau published notice to inform claimants that a determination of surface rights would be made. Verified statements by claimants were filed on only 2,500 of the 36,400 claims. Of these, 2,000 have been examined, and it has been determined that claimants could retain surface rights on 500 claims; the federal government retains surface rights on the other 1,500.

NO GIVEAWAY OF PUBLIC LANDS IS PROPOSED BY this Administration, according to Secretary of the Interior Fred A. Seaton. Some confusion has arisen following a statement by Arizona's Governor Paul Fannin urging the transfer of federal lands in Arizona to state ownership. In an explanatory statement Secretary Seaton has pointed to the need for modification of federal land laws and modernization of mineral laws, but denies that there can be any wholesale disposal of federal lands. Specifically, the Administration has sought passage of legislation to permit the sale of small tracts, up to 1,280 acres, to counties, municipalities, or individuals when such tracts have been classified as primarily of value for urban or business purposes. The proposal, embodied in a bill, H.R. 7042, would exempt national forests, units of the national park system, wildlife areas and similarly reserved areas from disposal.

ADDITIONAL WATERSHED FUNDS ASKED. THE President has been requested by the watershed development subcommittee of the House Committee on Public Works to include in the budget for next fiscal year sufficient funds for the planning of at least 200 projects. The subcommittee is following up on statements by Department of Agriculture witnesses at watershed hearings earlier this year. They testified that more than 1300 applications for watershed development programs have been approved by the states. Area involved is almost 94 million acres. Planning assistance has been provided for 565 watersheds out of the 1300. New applications are being received by the department at the rate of about 200 a year.

CLEAR TITLES TO ALL NATIONAL FOREST AND park lands will be the result of current land activity of the Department of the Interior. Around the turn of the century, when the western national forest and park areas were being reserved from the public domain, some private lands within the over-all boundaries were transferred to the federal government. The private owners were given the right to select equal acreage from vacant public lands. Later laws offered national forest timber as payment for the acquired lands, or at the claimant's option, the land could be reconveyed. Many lieu selections or requests for reimbursement or reconveyance have never been made. Thus, the federal government has hundreds of tracts, generally small, in national forests and parks with unconfirmed titles. Under Public Law 86-596, Interior Department has announced that all such claims must be presented prior to July 6, 1961.

ALASKA SURVEYS HAVE BEEN SPEEDED UP BY INterior Department's Bureau of Land Management. One million acres have been surveyed in the past three months. Speed-up has been accomplished by use of modern surveying techniques based on aerial photography and electronic distance measuring devices, with a minimum of on-the-ground field work. Township and section corners are placed by crews working from helicopters.

Editorial

"SEVEN IN ALL, BUT ENOUGH"

IT was mainly to help our budding foresters that the Society of American Foresters was formed. The first meeting was held in November, 1900, in my little office in the old department building. Present at the meeting besides myself were Graves, Price, Allen, Hall, Hosmer, and Sherrard. Seven in all, but enough.

"The purpose of the Society was 'to further the cause of forestry in America by fostering a spirit of comradeship among foresters; by creating opportunities for a free interchange of views upon forestry and allied subjects; and by disseminating a knowledge of the purpose and achievements of forestry.'

"By and large the society had no small share not only in educating our men, but also, and that was even more important, in establishing a genuine respect for the profession of forestry. That would help to induce as many of our hastily equipped leaders as possible to take time, as and when they could, to attend regular professional courses before settling down to the long pull. And a good many of them did.

"The weekly meetings of the society were held at my home, where the discussion of the evening was regularly followed by a very moderate feast of baked apples, gingerbread, and milk. To some of our men the proceedings were so new and strange that one of them, a westerner noted for his cool courage, actually fainted when the time came for him to speak. But he made his talk just the same.

"These meetings brought our boys into touch with many men of distinction in fields of science related to forestry. Men like Charles D. Walcott, Arnold Hague, F. H. Newell, Henry Gannett, J. A. Holmes, Frederick V. Coville, and Edward A. Bowers came and spoke. They were early associate members of the society. And so were General C. C. Andrews of Minnesota, Colonel William F. Fox of New York, James Wilson, Secretary of Agriculture, and Theodore Roosevelt.

"Later on, T. R., as President of the United States, addressed the members of the society at 1615 Rhode Island Avenue. It was a rare and most inspiring proof of his interest in forestry, for Presidents seldom, if ever, address meetings in private houses. T. R.'s speech did very much to stimulate the spirit of devotion to their work among the men who heard him.

"In such ways the little group of members of the society was welded together into what was later to become the vital core of the Forest Service—vital in loyalty to all that the Service stood for, and with the highest morale to be found anywhere under the government of the United States. . . .

"We were alive and on our way. We had come through our first crisis. After the perils of launching, our ship was afloat and right side up. We were ready to go places—provided Congress would kindly provide the necessary wherewithal. And Congress did."—Gifford Pinchot, from *Breaking New Ground.*

The American Forestry Association takes pride in congratulating the Society of American Foresters on its 60th Birthday. We welcome the foresters to their anniversary meeting here in Washington this month. More, the world's largest lay forestry association pledges itself anew to support to the hilt the many worthy activities of its sister professional society. From seven in 1900 the society has grown to 13,300 in 1960. That growth has been based on solid, professional principles—the result of eager, inquiring, farsighted minds. We predict that the gains in the next 60 years will dwarf those of the first 60 in comparison, for the far horizons of forestry are today more distinct and sharply etched than ever before. In particular, The American Forestry Association extends its salute to SAF Charter Member Ralph S. Hosmer, the last of the Immortal Seven, who will be with us this month in Washington. To Mr. Hosmer we extend a personal "Happy Birthday."

Ralph S. Hosmer, last of Immortal Seven

Gifford Pinchot

Henry Solon Graves

Overton Price

William Logan Hall

E. T. Allen

Tom Sherrard

Fifth World Forestry Congress

By SAMUEL T. DANA

MANY NA

IN the name of the Fifth World Forestry Congress, I present this International Friendship Grove to the University of Washington. It is our hope that you will accept this grove, President Odegaard, and help us keep alive the spirit of friendship which we also have planted here today." *(See Cover)*

Trees for Friendship

Thus simply and tersely did Richard E. McArdle, president of the Fifth World Forestry Congress, bring to a climax the most dramatic event of the Congress. This event was the planting on September 3, 1960, on the future main approach to the campus of the University of Washington in Seattle, of an International Friendship Grove—the first of its kind in the world. Dr. McArdle's presentation had been preceded by unusually colorful ceremonies. Led by a band, delegates from 65 nations, each flanked by a Boy Scout bearing the flag of his country and a Girl Scout bearing a shovel, marched down Campus Parkway to their appointed trees.

Then Henry Schmitz, President Emeritus of the University of Washington and Master of Ceremonies, introduced Egon Glesinger, Director of the Forestry and Forest Products Division of the Food and Agriculture Organization of the United Nations, who called the roll of the countries represented. As each nation's name was called its flag was raised and a shovelful of earth was placed around the tree. When the planting was completed, Dr. McArdle, as president of the Congress, poured on the earth around the tree of the United States (the host nation) water brought to him by two

Foresters visited the Redwood Experimental Forest near Crescent City, California, where research is conducted on management of old growth redwoods

NATIONS, ONE GOAL

For the benefit of our readers both here and abroad, Dr. Samuel T. Dana is regarded as the "dean of American forestry." He is the former dean of the School of Natural Resources, University of Michigan.

Blue Birds, to symbolize unity and the cementing of friendship among all the nations, while the band played "Golden Friendships."

Following Dr. McArdle's presentation, President Charles E. Odegaard of the University of Washington accepted the grove with the comment that "these trees have been planted on this site by foresters from many lands, and so they symbolize also the warmth of the human heart speaking across and over the babel of tongues, the strangeness of cultures, and the tenseness of social relations. Man here is making his own mark, through the companionship of these trees revealing the aspiration of men for fellowship throughout the world."

Echoing the same sentiment, C. R. Ranganathan, President of the Fourth World Forestry Congress at Dehra Dun, India, in 1954, said that "this grove will be a commemoration of the great gathering of the world's foresters and wood technologists at Seattle in 1960. It will, in addition, be a symbol and token of our common aspiration for international amity and understanding. Forestry, as we all know, is a great promoter of international friendship. Trees, especially those of great age, have at once a humbling and uplifting effect on men. In some mystical way they seem to strike a spiritual chord in us and to make an appeal for serenity, sanity, and wisdom."

The final remarks by Eino Saari, President of the Third World Forestry Congress at Helsinki, Finland, in 1949, had both a poetic and a prophetic flavor: "These trees have been planted today by a generation which has experienced how immense man's suffering can be as the result of suspicion and hate between nations but which in spite of this is optimistic and bold enough to have a firm belief that better understanding and more friendliness between the nations can be achieved. This is the message we have given to these trees to be carried by them to those who can stop here for a while to listen to what the trees tell in their own language of soft whispering of leaves and branches."

Finally, following a fanfare by the band, two students of the University of Washington from India and Peru unveiled the dedicatory plaque, while students from Norway and Ghana raised the flag of the United Nations across the parkway from the flag of the United States. The Rev. Russell B. Staines of Seattle offered a prayer for friendship, the band played "Hands Across the Sea," and the flag bearers and shovel bearers marched back to the point of assembly. Thus ended the most impressive feature of the Congress, which left its permanent imprint both in the grove itself and in a bronze plaque on a granite slab bearing the inscription:

International Friendship Grove
Commemorating
the
Fifth World Forestry Congress
University of Washington
1960

Many Nations, One Goal

The Congress was truly worldwide in scope, with delegates from 65 nations and six international organizations. The latter included the Food and Agriculture Organization of the United Nations, the Economic Commission for Europe of the United Nations, the International Union of Forest Research Organizations, the European Economic Community (the "Inner Six"), the Inter-

Clint Davis, left, head of I&E Division, U.S. Forest Service, presents a Smokey Bear to Valentin G. Nesterov, USSR, whose work in Russia is similar to that of Mr. Davis'

Nepal's tree, a Smith spruce, is inspected by (left) R. E. McArdle, chief, USFS, S. R. Pant, and Rama B. Thapa.

national Labor Organization, and the World Meteorological Organization. A disappointment was that only 11 of the 20 Latin American Republics were represented. Nicaragua, Cuba, Dominican Republic, and Ecuador had indicated an intention to send representatives but failed to do so. No word was received from Costa Rica, El Salvador, Panama, Bolivia, and Paraguay.

Numerically the Congress was much the largest yet held, with a total attendance of nearly 2,000. Approximately complete figures are as follows:

	U. S.	Foreign	Total
Members	901	598	1,499
Associate members	243	126	369
Secretariat	----	----	114
	1,144	724	1,982

The United States naturally had much the largest delegation. Canada with 125 representatives and Mexico with 76 brought the total for North America up to nearly three-fourths of the total attendance. Other countries with sizable attendance were Sweden with 54, the United Kingdom with 38, Japan with 31, Germany with 24, and the Philippines and the Union of Soviet Socialist Republics with 16 each. Associate members were chiefly ladies, who added much to the social activities of the Congress.

Perhaps the most remarkable feature of the gathering was the feeling of good fellowship which prevailed. World tensions that so soon found violent expression at the General Assembly of the United Nations were not in evidence at Seattle. Whatever differences might exist between their respective governments were not reflected either in platform utterances or in the personal relations of the delegates with each other. As foresters, they were friends, with the common goal of advancing their profession. There were no "curtains" to hinder communication between representatives of different races, creeds, and cultures, or to prevent them from uniting in the search for ways and means to make the forest a more effective resource in promoting the well-being of people everywhere. The International Friendship Grove seemed to represent truly the spirit of the Congress.

Scope of the Congress

The opening ceremonies of the Congress on August 29 began with a dramatic salute to the Forests of the World embodied in a pageant depicting their products and services in the form of wood, water, forage, wildlife, and recreation. Fifth World Forestry Congress commemorative stamps were presented by representatives of the Postmaster General of the United States and of the Secretary General of the United Nations. These commanded a lively market on the part of philatelists and others seeking to obtain first-day-of-issue cancellations on attractive first-day covers. Commemorative stamps were also issued later by Sudan, Taiwan, and Thailand.

At the same session the following general officers of the Congress were unanimously elected:

Honorary Presidents—Eino Saari, Finland; C. R. Ranganathan, India.

President—Richard E. McArdle, United States of America.

Co-Presidents—John D. B. Harrison, Canada; Enrique Beltran, Mexico.

Vice-Presidents — Walter Mann, Germany; Hitoshi Yamasaki, Japan; Erik Wilhelm Hojer, Sweden; The Earl of Radnor, United Kingdom; Anatole Borisovich Zhukov, Union of Soviet Socialist Republics.

Chairmen of the ten sections into which the Congress was divided were as follows:

Silviculture and Management—Miroslav Vyskot, Czechoslovakia.

Genetics and Tree Improvement—Allesandro De Philippis, Italy.

Forest Protection — Elias Dabas, Argentina.

Forest Economics and Policy—Jean-Pierre Levy, France.

Education—Stephen Tolbert, Liberia.

Forest Products—Maxwell Ralph Jacobs, Australia.

Forest and Range Watersheds—D. Salvador Sanchez-Herraro y Calle, Spain.

Forest Recreation and Wildlife—V. S. Rao, India.

Logging and Forest Operations—Josef Jungo, Switzerland.

Tropical Forestry—Tiburcio S. Serevo, Philippines.

The names of the sections, each of which held several half-day meetings, show clearly the broad scope of the Congress, and the geographical distribution of its officers indicates its cosmopolitan character. Including the vice-chairmen of the sections, these came from 39 different countries.

B. R. Sen, Director General of the Food and Agriculture Organization of the United Nations, noting that "the world is faced with the problem of explosive population growth relative to economic development," emphasized the part that forestry can play in FAO's Freedom from Hunger Campaign launched on July 1, 1960. He also called attention to the need for developing new and more efficient techniques, for systematic, long-term planning, and for strengthening administration and education.

"There is a growing realization that modern forestry can no longer consist of a simple return to nature or of a slavish submission to it; the use of fertilizers, irrigation, soil working, vegetative selection and hybridization are the new weapons at forestry's disposal for obtaining yields which exceed the limits set by nature. Yields ten or even twenty times greater than those obtained from natural forests are already being realized. . . . The role of foresters as planners must be emphasized. However great the achievements of modern forestry techniques may be, their effectiveness is considerably impaired if they are applied indiscriminately. . . . Forest admin-

Anne-Marie Grani, Norway, and Richard Nanka-Bruce, Ghana, raise United Nations flag over Int'l. Friendship Grove

Two Blue Birds brought water to Dr. McArdle, president of congress, to pour around U. S. tree to symbolize unity and cementing friendship between nations

Most dramatic event at the congress was the international tree planting ceremony

Enjoying official reception are: (left) Dr. E. L. Walter Mann, Ministerialdirektor, Ministry of Food, Agriculture and Forestry, Germany; Dr. Alexander G. Friedrich, a German who teaches at the Liberian School of Forestry; Stephen Tolbert, Secretary of Agriculture and Commerce, Liberia; Henry Clepper, executive secretary, Society of American Foresters; Charles A. Connaughton, regional forester, U.S. Forest Service, Dr. Henry Schmitz, president emeritus, Univ. of Wash.; Fred E. Hornaday, AFA

Aerial view of the lovely campus of the University of Washington, where the Fifth World Forestry Congress was held.

Equipment display, held in university's stadium, featured everything from log barkers to logging trucks and tractors

Russians planted a Siberian larch as their contribution to International Friendship Grove on University of Washington's campus. Soviets sent delegation of 16 people.

istrations [must] accord a more important place in their programs of work to studies on questions such as the economic and social benefits to be obtained from forest investments, market prospects and trends in demand; studies which are all the more urgent since the considerable shortening of the growth cycle made possible by modern silviculture necessitates a much closer connection between forest production and forest consumption policies. . . .

"Finally, a word about education. The full benefits of forest policies cannot be reaped unless they are properly applied and thoroughly accepted. There is a need, therefore, for enlarging and extending both technical and popular education in forestry beyond its present rather modest limits, as well as of strengthening forest administrations. Both questions are two different aspects of the same fundamental problem—the present scarcity of forest technicians. . . . It will be readily conceded that until such time as there are more forest technicians and a greater public awareness of the economic and social value of the forest, forest policy will fail to make its full contribution to the welfare of mankind."

Multiple Use to the Fore

The central theme of the Congress was Multiple Use of Forest Lands. Dr. McArdle delivered the keynote address, in which he pointed out the well-known facts that throughout the world demands on forest products and forest services are increasing rapidly and that these demands can be met only by increasingly intensive management which aims at producing the optimum combination of goods and services—in other words, "multiple use." Although admitting that multiple use is not a panacea, he expressed the conviction that it has great advantages as applied to the great bulk of our forest land in that it helps to solve the problems of scarcity, tends to reduce or resolve conflicts of interest or competition for resources, and promotes balance in resource use.

Subsequent speakers discussed the practical application of multiple use on public and private lands in the United States and other countries. It was clear that multiple use has world-wide acceptance as an important goal of forest management; that its practice varies greatly under different conditions, not only as between countries but in the same country; and that opinions differ as to when multiple use is actually being practiced.

Presentation of multiple use as a basic concept and as a universal goal in forest management was naturally followed by consideration of recent progress in world forestry. Dr. Glesinger emphasized the importance of speeding up such progress because of the significant part that forests and forestry play in the world economy. Primary forest products, for example, have a value of about 35 billion dollars—a figure of the same order of magnitude as the national incomes of countries like France, Germany, or the United Kingdom, and roughly a fourth of the estimated value of world food production. Forests and forestry afford employment to 17 or 18 million people, and the number is growing.

Forests yield not only wood but a host of other benefits or "human utilities." In many instances their physical and social influences transcend their importance as producers of wood. Dr. Glesinger assured the Congress that "by recognizing the main purposes of the forest and acknowledging the multiple-use concept, we do not mean that there should be equal division of forest lands among all possible uses or all uses on every hectare. What we do mean is that, in defining our forest resources against competing claims for land, we must weigh one exclusive use against a possible combination of uses, with the idea of getting the optimum combination in a given management unit. The forest will not necessarily yield maximum production for any one of the uses selected, but the total benefits will probably be greater than could be obtained by exclusive use for any one purpose."

Other speakers echoed the view that forestry throughout the world is on the move, but that the movement is too slow to meet prospective needs. The situation is particularly discouraging in the underdeveloped countries, where both increased utilization and increased production are most urgent. Among the reasons responsible for the relatively slow progress, Dr. Glesinger cited these:

"Governments, legislators, and administrators still fail to appreciate fully the importance of forest development and conservation with the result that investments are insufficient, forest services are understaffed and politically weak, and private capital is not attracted even where forest developments would be profitable.

"Planners and economists often tend to give low priority to forest developments . . . because they believe that trees must always take 100 years to grow and are low-yielding, long-term investments. . . .

"Population pressures often combined with political expediency are another major reason why little priority is accorded to the conservation and maintenance of existing forests or to the establishment of new ones. The inability to put a value in economic terms on the protective benefits that come from the forests contributes very significantly to this situation. . . .

'The biggest difficulty of all stems in my opinion from the fact that in large parts of the world foresters have become accustomed to organize forest output almost exclusively in accordance with their views about the capacity of the resource and with little or no thought to present or prospective national needs. I have often been surprised to find that although planning is an indispensable element of all forest management and should therefore be highly developed among foresters, there are only a few countries where forest production is organized and planned in accordance with modern economic concepts. As was recently said by a distinguished European forester: 'Silviculture must be the handmaid, and not the expensive mistress, of management.' "

Another speaker stated that "the rapid spread of the multiple-use concept in forest management has been the most notable feature in United States forestry during recent years." With this exception, and with a few passing references to watershed protection, range management, and shelterbelts, the discussion of world progress in forestry centered on wood products. Clearly, in most of the world, multiple use is at present more honored in theory than in practice.

Problems and Progress

At the same time, the 194 papers listed in the program, many special papers, and much discussion from the floor covered fully the various practices which multiple use employs and the scientific foundations on which they rest. The emphasis on knowledge obtained by research as the only firm basis for intelligent forest management was particularly striking.

In the broad field of forest protection, the influence of weather and climate on the occurrence of forest fires and of disease and insect epidemics, together with various measures of control, received much attention. One illustration of the importance of weather is the setting by lightning of an average of 2,644 fires a year in the three Pacific Coast states. Another is the extensive dieback of birches in the Northeast as a result of increased soil temperatures caused by at least a temporary trend toward a warmer climate in that region.

Disease control can now be prosecuted with protective organic fungicides, translocatable and selective

(*Turn to page 40*)

The nations represented and the tree planted for each were as follows:

COUNTRY	COMMON NAME	SCIENTIFIC NAME
Argentina	Roble false-beech	***Nothofagus obliqua***
Australia	Alpine ash	***Eucalyptus gigantea***
Austria	Austrian pine	***Pinus nigra***
Belgium	Norway maple	***Acer platanoides***
Brazil	Johnston eucalyptus	***Eucalyptus johnstonii***
Bulgaria	Tatarian maple	***Acer tataricum***
Burma	Oriental arborvitae	***Thuja orientalis***
Cameroun	Hinds walnut	***Juglans hindsii***
Canada	Sugar maple	***Acer saccharum***
Chile	Dombey Southern beech	***Nothofagus dombeyi***
China	China fir	***Cunninghamia lanceolata***
Colombia	Noble fir	***Abies procera***
Czechoslovakia	European mountain-ash	***Sorbus aucuparia***
Denmark	Northern red oak	***Quercus rubra***
Finland	European white birch	***Betula verrucosa***
France	Sycamore maple	***Acer pseudoplatanus***
Gabon	Chestnut oak	***Quercus prinus***
Germany	European beech	***Fagus sylvatica***
Ghana	Bigleaf maple	***Acer marcophyllum***
Greece	European hop-hornbeam	***Ostrya carpinifolia***
Guatemala	White pine	***Pinus strobus***
Haiti	Sweetgum	***Liquidambar styraciflua***
Honduras	Sugar pine	***Pinus lambertiana***
Hungary	European hackberry	***Celtis australis***
Iceland	Sitka alder	***Alnus sinuata***
India	Himalaya cedar	***Cedrus deodara***
Indonesia	Golden chinkapin	***Castanopsis chrysophylla***
Iran	Flowering ash	***Fraxinus ornus***
Ireland	White beam	***Sorbus aria***
Israel	Oriental hornbeam	***Carpinus orientalis***
Italy	Montpellier maple	***Acer monspessulanum***
Ivory Coast	Subalpine fir	***Abies lasiocarpa***
Japan	Japanese red pine	***Pinus densiflora***
Jordan	Lindley cypress	***Cupressus lindleyi***
Korea	Korean pine	***Pinus koraensis***
Lebanon	Lebanon cedar	***Cedrus libani***
Liberia	Red spruce	***Picea rubens***
Malagasy	Lodgepole pine	***Pinus contorta***
Malaya	Paper mulberry	***Broussonetia papyrifera***
Mexico	Patula pine	***Pinus patula***
Nepal	Smith spruce	***Picea smithiana***
Netherlands	Little-leaf linden	***Tilia cordata***
New Zealand	Black false-beech	***Nothofagus fusca***
Norway	Norway spruce	***Picea abies***
Pakistan	Himalaya horsechestnut	***Aesulus indica***
Peru	Boxleaf azara	***Azara microphylla***
Philippines	Western redcedar	***Thuja plicata***
Poland	Polish larch	***Larix polonica***
Portugal	Portuguese laurelcherry	***Prunus lusitanica***
Rumania	Macedonian pine	***Pinus peuce***
Spain	Cork oak	***Quercus suber***
Sudan	Port Orford cedar	***Chamaecyparis lawsoniana***
Sweden	Scots pine	***Pinus sylvestris***
Switzerland	Golden-chain tree	***Laburnum alpinum***
Thailand	Pacific madrone	***Arbutus menziesii***
Tunisia	Algerian fir	***Abies numidica***
Turkey	Turkey oak	***Quercus cerris***
Union of South Africa	Western larch	***Larix occidentalis***
Union of Soviet Socialist Republics	Siberian larch	***Larix sibirica***
United Kingdom	English oak	***Quercus robur***
United States	Douglasfir	***Pseudotsuga menziesii***
Uruguay	Engelmann spruce	***Picea engelmannii***
Venezuela	Eastern hemlock	***Tsuga canadensis***
Viet-Nam	Saghalin spruce	***Picea glehnii***
Yugoslavia	Serbian spruce	***Picea omorika***

THE VANISHING CONTINENT

By R. M. ELIZALDE

Rafael MacClure Elizalde is the son of former Minister of Ecuador to the United States, Rafael H. Elizalde and Teresa MacClure Elizalde of Santiago, Chile. A native of Chile, he received his higher education at the University of Louvain, Belgium, where he was graduated as a Doctor of Political and Diplomatic Sciences. Later he returned to Chile and became a free-lance journalist.

In 1957, he produced a series of articles on the conservation of natural renewable resources of Chile in the popular Santiago tabloid *Ercilla*. As a result of these articles, he was requested by the Ministry of Agriculture to write a book, *The Survival of Chile*, which appeared in 1958.

CONSERVATIONISTS have branded Latin America "the Vanishing Continent" because of the serious misuse of land in all of the countries that comprise it. It is indeed a disheartening title, and the worst part of it is that few people take it to heart or do much to stop the devastation of the continent's resources.

Everywhere, from the Rio Grande in Mexico to the Rio Minas in the southernmost province of Magallanes in Chile, mistreatment of the watersheds has caused great havoc, such as floods and silting of rivers and dams, as well as droughts and drying up of streams. The common practice of clearing the land of forests by fire has caused serious damage because no studies have been made of the rugged topography to determine whether the land is best suited for trees. And precautionary clearing measures to keep fires from spreading and getting out of control because of the sweeping winds are not even considered.

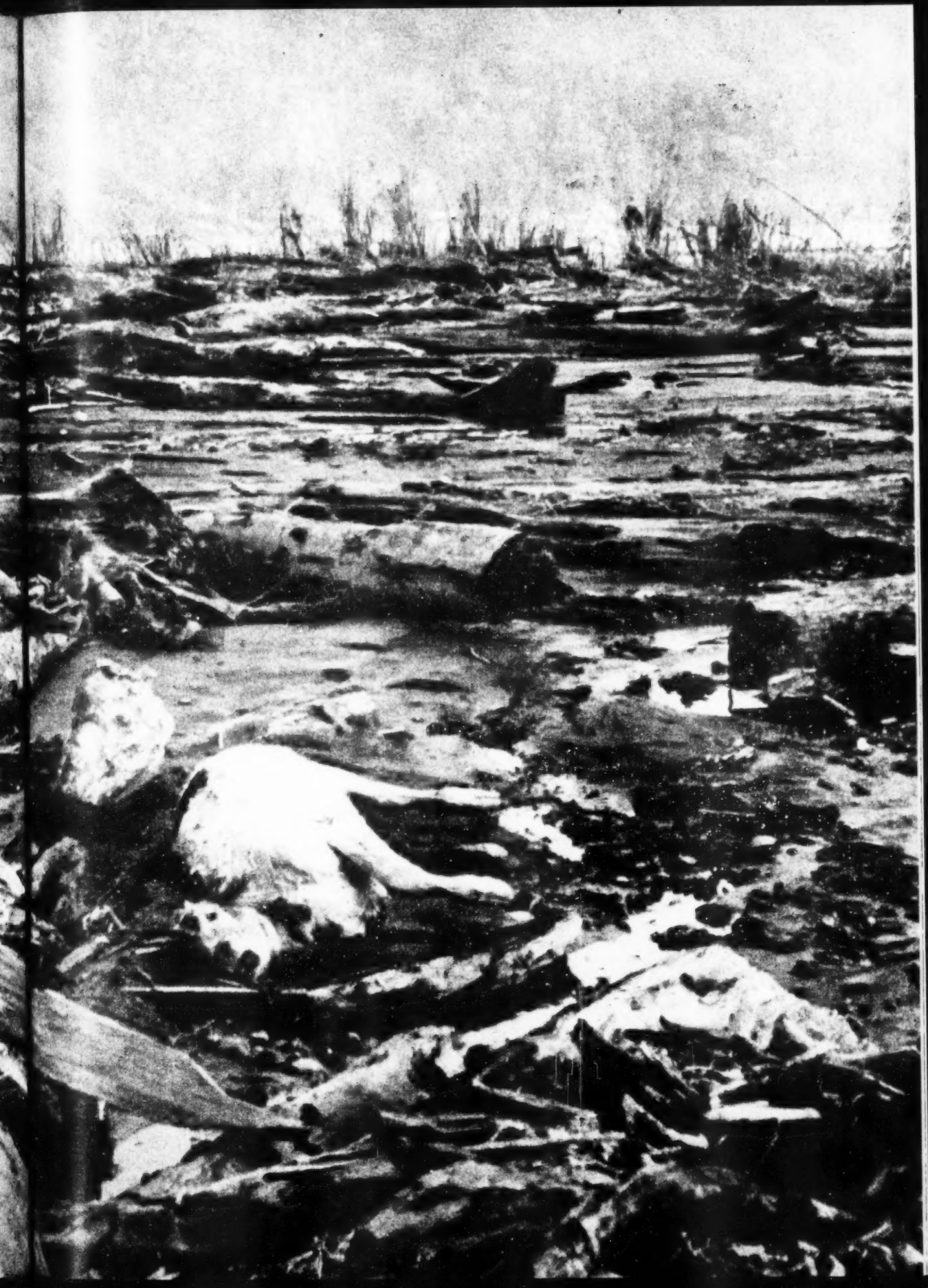
Good land use is a principle known to agricultural engineers, conservationists, and foresters, but only a few farmers know how or can afford to cultivate the land according to its capabilities. Overgrazing and overcropping are widespread because of faulty range management and uneconomic land tenure systems. Forest, range, soil, and water conservation and administration laws are not very effective due to a lack of real enforcement and the continuous prodding of homesteaders and self-appointed settlers.

Thus an enormous new continent, integrated by nations bent on industrializing themselves, has become more and more dependent on foreign imports of essential food for the survival of its people. Less than 30 years ago, most of the Latin American republics were self-sustaining in their food supplies. The land was richer because its topsoil was better protected, dreaded erosion had not made such headway, and the urge for industrialization had hardly begun.

Man and Conservation

Man is undoubtedly the main beneficiary of conservation. It was invented for him and his descendants. But in socio-economic terms man himself is a renewable natural resource. In fact, he is the most important of them all. Therefore, if conservation principles were applied on a universal scale, man would be the first resource to be practically and efficiently considered. If a man lives in wretched surroundings, hasn't enough food for himself and family, owns a meager plot which has become submarginal because of single crop tilling, his environment is miserable, he is illiterate, dresses

Utter desolation, the result of recent earthquakes in Chile



Avalanches sweep down denuded mountains, causing widespread destruction.

in rags, and has nothing better to look forward to, he can hardly be expected to practice conservation of the other natural resources.

Perhaps that is the basic reason why conservation has not made much progress in Latin America. The land tenure system is undoubtedly at fault. There is too much land in too few hands, and too little land in too many hands. That is why the new United States economic policy which will give substantial economic aid to Latin America has specifically mentioned that agrarian reform be duly considered. This is a touchy subject, and one that was almost taboo only a few years ago. But today population pressure, the need for higher food production, social peace, and security has brought about a change in attitude of even the more conservative elements in many Latin American countries who realize that a reasonable land reform is necessary.

Influence of the American Conservation Movement

Although conservation principles were practiced long ago on the farms of the founding fathers of the United States, Washington and Jefferson, and the necessity of applying them nationally was advocated almost a century ago by George Marsh in connection with soils and John A. Warder with forests, real interest in conservation was not even awakened by Pinchot's success as the creator of the Forest Service.

Perhaps because of the faster international communications, the tremendous impression of the Dust Bowl tragedy, etc., conservation began to attract attention. Soil specialists suddenly became aware that erosion was advancing in many countries. In Chile, Agricultural Engineer Manuel Elgueta was the first one to sound the alarm concerning the serious situation in Chile arising from diminishing yields. Then Hugh Bennett's great work in organizing the U. S. Soil Conservation Service gradually became known. And after 1940, flocks of Latin American agricultural technicians came to the United States to study the spreading conservation movement.

Erosion in Chile

A look at a map of Chile is sufficient to realize how erodible our country is. Stretching over 3,000 miles, this narrow strip of land averages about 80 miles in width from the snow-clad, lofty Andes to the deep Pacific. If it weren't for the Coast Range which runs parallel to the Andes, forming a barrier about ten miles from the ocean, Chile would be the greatest landslide on earth.

Its rugged topography, the existence of many volcanoes, and swift-flowing rivers and streams coupled with a variety of rainfall conditions —dry in the north, semi-arid in the central part where it rains only three months in the year, and heavy rainfall in the south—necessitate a forest conservation policy.

Unfortunately such has not been the case. On the contrary, clearing of land by fire in the heavily-wooded south, destructive lumber practices, use of the limited wood supply in certain areas in the north for fuel to feed the iron and copper foundries, felling of the dense oak forests, which at one time covered considerable areas of the Coast Range, for home building and railway construction, have denuded many watersheds and steep slopes of both mountain ranges. The devastation of the rich Chilean hardwood forests has caused indescribable damage to agriculture, the silting of rivers, destroyed much wildlife and reduced the number of valuable tree species, such as *Fitzroya cupressoides, Araucaria araucana, Piligerodendron uviferum, Myrtus luma Barry, Jubaea chilensis,* etc. Deforestation has resulted in the formation of advancing sand dunes all along the coast, and has naturally increased different kinds of water and wind erosion—sheet, gully, riverbank, and road. Agricultural Engineer Manuel Rodriguez Zapata has reached the conclusion that 72 per cent of the land is eroded, of which 17 per cent is practically lost—about 15 and two million acres respectively. Sand dunes cover approximately 1,500,000 acres.

Not all erosion in Chile has been caused by the burning of the forests. Overgrazing on natural pastures where grass grows only three months of the year, straight furrow plowing up and down hills, single crop planting, goat grazing in the northern and central zones where there are only scant chaparral stands, and intensive sheep raising in the southern province of Magallanes without proper range management are other causes. However no one can deny that the principal factor that has speeded erosion in Chile is the clearing of forests by fire, particularly in the watersheds.

Chilean Conservation Movement

In spite of the advanced stage of erosion in Chile, Chilean agricultural engineers were among the first to come to the United States to learn about American conservation. Chile was also the first South American country to establish a National Soil Conservation Service on the basis of what the country could afford.

Chile has had a forestry legislation dating as far back as 1872, with provisions for better forest management. But that law was just as ineffective as a later law of 1931. The laws were well-meaning but could not be really enforced because the forest lands, which are only 30 per cent state-owned, were located in almost uninhabited, distant regions, and they did not provide for an organization of rangers who would punish trespassers. Furthermore, lumbermen were so powerful and influential that they have managed to delay any really energetic and effective legislation on the matter.

But things have now reached a most dramatic point. The recent earthquakes have made a deep impression in government circles as to the inestimable value of the tree. The Forest Department, which is under the Ministry of Agriculture, is working closely with the Executive Office to draw up a final law to enable the country to save what is left of its forest heritage, which has been reduced from 60 per cent to 25 per cent of the country's land area.

The Forest Department, provided it obtains the necessary funds to put into effect the much-needed measures, is ready to activate its program. It has established offices in 12 different zones, which are managed by forest engineers who are well aware of the country's serious forest plight.

The Department of Soil Conservation and Technical Assistance, also under the Ministry of Agriculture, has more than 20 regional offices throughout the country. They are carrying out some very valuable

work in this field as far as funds permit them. The International Economic Administration, through the Agricultural Agreement with the Chilean Government, has been operating a Pilot Plan in the provinces of Chillan, Concepcion, and Maule. The I.C.A. program has introduced many kinds of soil, water, and forest conservation techniques, such as contour plowing, strip-cropping, terracing, etc. Its work has proved so effective that the Agricultural Agreement has been renewed and extended to other agriculturally backward neighboring provinces.

The Need for a National Conservation Consciousness

Although a conservation consciousness in Latin America implies a continental "must," there is much work to be done to disseminate and popularize this idea.

However, several urgent problems are hampering such a project: ways must be found to raise the low standard of living generally, while more immediate solutions must be employed by the government to cope with the pressing demands and responsibilities which have become more acute since the earthquake. Also, the frequent political elections and discussions that congressmen and politicians always consider paramount have postponed a really realistic conservation program.

Only a few agricultural men of science and thinkers are aware of the urgency for a plan that could guarantee the country's survival: one that will protect renewable natural resources in order that the land will be able to produce all the food its 7.5 million people need. Actually Chile is importing more than 50 per cent of its foodstuffs. Apparently there is no reason for this. Serious thought should be given to this situation because the population is increasing at a rate of 2.5 per cent a year, and the increase is progressive. By 1970 there will be over 10 million Chileans.

Conservation Must Be Taught At School

Some leading foreign foresters on scientific missions have warned that if the destructive practices in forest exploitation in Chile continue, in 10 or 20 years there will not be any forests left in the country. This dire forecast should make people shudder, but unawareness of the plight is amazing. What could, under such circumstances, make people sit up and take notice?

Undoubtedly we must resort to the most forceful means to insure immediate action. This would involve the use of all kinds of audio-visual material, such as color films fully describing in an interesting manner what conservation problems confront the country. Agreements should be reached with motion picture distributing firms to exhibit those pictures in their theaters. Other material should include special 16 mm. films for grade schools, high schools and universities, filmstrips for lecturers who should tour the country; striking posters, books and pamphlets for all educational levels, television and radio broadcasts, editing a monthly magazine exclusively devoted to conservation, etc.

Economic aid to Latin America should emphasize the need for conservation. Private conservation societies should be encouraged to open chapters in Latin America in order to promote conservation. If Latin America is taught, and finally learns, how important it is to wisely manage its natural renewable resources, the pressure on United States' resources would be lessened, and even the American taxpayers' load would be lightened. Even large corporations selling agricultural machinery to Latin America could do a most beneficial public relations job by emphasizing some of the points of the conservation program.

Conservation Deserves World Attention

As far back as 1905, President Theodore Roosevelt and the great first American chief forester, Gifford Pinchot, planned a World Conservation Conference which was to be held at that time in The Hague. If one stops to think how far ahead of their time those men were and how slow other great statesmen have been to follow up such an admirable idea, one can only conclude that the world today is sadly lacking in the inspired leadership of men of vision —wise, courageous, and idealistic enough to go to the very roots of human uneasiness resulting from a dwindling food stock and a growing population. Not even the United Nations has set up a Conservation of Natural Resources Organization which could operate as a top agency of the F.A.O.

Regarding Latin America, as far as it is known no member of the O.A.S. has yet ratified the Convention for the Protection of Plant and Vegetable Life and Scenic Beauty which was signed by their governments in Washington in 1941. This idealistic agreement, aimed at the preservation of wildlife so that man may find life more enjoyable, has been discarded.

Furthermore, the O.A.S. has abolished the Conservation Department which was carrying out an indispensable program to help save the natural resources for the future generations of this vast continent.

Perhaps it is now time that at least a Second O.A.S. Congress for the Conservation of Natural Renewable Resources should be called. A first Congress was held by that organization in Denver in 1948, and it brought to the limelight the discussions of perhaps the world's most vital problems. The whole continent of America would again light the road to a more plentiful living for all humanity.

Serious erosion on vine plantation is result of plowing up and down the hills.

TREES FROM T

By R. W. NEELANDS

SECONDS after the little plane skims by overhead a brief, rain-like patter rattles against the bare branches of the hardwoods and the dry leaves underfoot. Scattered, brilliantly-colored little pellets now brighten the ground where before there was only winter's drab mantle of forest litter. Curiosity would compel a person to pick up one of these pellets, but even a trained woodsman probably wouldn't realize at first glance that he was holding in his hand a bit of life. It doesn't look very much like what it really is—a pine seed. The size and shape are right, but its bright pink obviously isn't anything that nature produced. In that oddly-colored coating lies a success story that is transforming southern forestry.

The magnificent virgin stands of pine that once covered much of the South are a well-known chapter of the story of American forests. The chapter was closed in the early 1930's when the cut-out and get-out lumberman had cleaned out all but scattered remnants of the big-tree forests. His self-made monument was the millions of empty acres he left lying abandoned across the South to join those that had grown too much cotton too many times.

The land was a catastrophe, but in it there was hope. Where fires, insects, and disease hadn't ravaged these wastelands too often, young pines struggled into survival. Released from the covering canopy of older trees, they grew at an astounding rate, adding as much wood in one year as the old slow-growing mature trees did in ten.

Far-sighted conservationists recognized the promise of these young stands, and began experimental, small-scale plantings. The results were fantastic. In 12 to 18 years, the plantations were ready for a pulpwood cut. At 25 years of age, they were often large enough for sawtimber. It didn't take much of this kind of growth to prove that the South's woodlands were only temporarily out of business.

It was obvious that the millions of idle southern acres were a vast storehouse of growth potential. The key to the storehouse was reforestation. If the potential could be released, the resulting continuing yield of wood products could help rebuild the battered, tottering economy of the South.

Early reforestation efforts included plantings of both seedlings and seed. Each had successes and failures. But the only consistent failure was direct seeding—the broadcast spreading of pine seed directly onto the surface of the ground. Birds and rodents, equipped with seemingly insatiable appetites, gobbled up the seed as fast as it was put down.

And this was a pity, for direct seeding is many times faster than machine planting of either seedlings or seed; a man, direct seeding with one of the oldest and crudest machines, the "cyclone" hand seeder,

M THE SKIES

A few days after being dropped from plane, longleaf pine seedling had begun to grow.

could cover 20 acres a day. The problem bothered many conservationists, for the millions of southern acres needing reforestation would require a staggering amount of time.

There were men who looked far ahead and saw that time was one thing that America didn't have for the job and that someday the wood products of every acre of available forest land would be needed. As old growth stands across the nation were cut, and competition sprang up in an expanding population for land for farming and cities and forests, the pinch could become drastic. Reforestation of the South was not only desirable, it became a national necessity. And it had to be started promptly and done quickly if the still-empty acres were to support forests that would be ready for harvest in time.

The obstacles to direct seeding *had* to be broken. Someone, somewhere had to come up with the answer. America waited.

The problem was tackled by a U. S. Forest Service research unit at Alexandria, Louisiana. This field installation of the Southern Forest Experiment Station, which is headquartered in New Orleans, is under the direction of Bill Mann, a tall, lanky New Yorker. During early experiments on this job, Bill and his men used many types of pine seed. They discovered quickly that longleaf, the hardest to plant, is the easiest to direct-seed. It germinates promptly on the most uninviting seedbeds, even on grass roughs. Seedlings develop a long taproot that enables them to survive a dry first summer. This most beautiful of the southern pines naturally became the favorite for early trials. As the longleaf was direct-seeded over trial acres, birds and rodents fattened on the test seed.

As late as 1954, Bill Mann, still not able to provide the desperately-needed answer, recognized the mettle of his feathered opponents with the statement, "The reliability of direct seeding of longleaf pine will be increased with the development of cheaper and more effective bird-control measures."

In the same year, tantalized by the realization of how much *could* be done with direct seeding if the birds were kept away from the seed, Bill recommended in desperation, ". . . a bird patrol. As soon as the seed is

Millions of pine seeds spray out in a cloud behind a light plane. After seedlings become established, cull hardwoods are cut or deadened to give these young pines the sunlight and growing room that result in an almost unbelievable growth.

on the ground, one man should be assigned to each 200 acres. He should have a shotgun to frighten the birds. The patrol should be maintained until most of the seeds have germinated and shed their seed-coats—usually in about six weeks if the weather is favorable."

Bill would have been cheered if he had known how close the long-sought answer would follow on the heels of his rather sad admission of partial defeat. The next year, he was able to write an article for *Forests and People* magazine that carried the jubilant title, "Not for the Birds."

The breakthrough came somewhere in a seemingly endless list of chemicals being tested as seed coatings. And it was a breakthrough—the preparation, called Morkit, gave such spectacular results in field tests near Alexandria in 1954 that eager landowners in Louisiana alone used it on almost 10 tons of longleaf seed in 1955.

The magic ingredient in Morkit proved to be anthraquinone, a grey powder commonly used to make dyes, laxatives, and photographic preparations. It was cheap—a pound, costing 40¢, treated four pounds of seed. It was easy to apply and, above all, it worked! Not only did the birds leave Morkit-treated seed alone, but if they did eat a coated seed before discovering their mistake, they suffered no ill effects. Other developments followed swiftly. Synthetic anthraquinone replaced Morkit. Another new preparation, Endrin, when mixed with bird repellents, gave the needed protection against seed-eating rodents.

Meanwhile industry, eager to put this quicker, cheaper method of reforestation to immediate use, worked together with the U. S. Forest Service to give the repellents the final, all-important test—large-scale commercial seeding. It worked. In Louisiana alone, 8000 acres were successfully seeded in the winter of 1956-57. To date, landowners in the state have sown more than 180,00 acres.

While early large-scale direct seedings were an outstanding success, the process was still slow and laborious. Many potentially good pine sites were either covered with brush, isolated by wet ground, or on rough terrain. In many areas, men or machines just weren't able to get to where they could do the most good. There was one more big step to be taken. The step came from a typical American approach to a problem—if you get in trouble on the ground, take to the air! And so Bill Mann and his men turned to agricultural seeding planes, and made them into a new tool of forestry.

Here, too, problems came up that made their efforts seem hopeless. Seed hoppers, designed for smaller crop seeds, clogged on the larger pine seed. The proper flow of seed couldn't be adjusted or measured. Early trials were disappointing and wasteful. But once again, the goal was too big to admit defeat. Eventually, each problem was solved.

Now, light planes operating from improvised landing strips near the project can properly distribute 3000 to 4000 pounds of repellent-treated pine seed per day, covering an area of 1500 acres of *any* kind of terrain. Helicopters, requiring only an opening in the brush for a landing area, can seed even faster—up to 3000 acres a day.

In the late fall and early winter, the cutover lands of the South will often hear, from now on, the droning engine of a small plane or helicopter. The aircraft marches back and forth in giant's strides, pausing only long enough to land and pick up another potential forest in its seed hoppers. In 20 or 30 years, the engine sounds in these same areas may well be those of power saws as they harvest the first cut in a thriving stand of longleaf or shortleaf, or a hybrid that hasn't even been named yet.

This is the sound and vision of modern forestry in the South. It's not a dream—it's here with us now. It marks the finish of just one chapter of one research story. The whole story will be written when once again the southern forests are the vast, vital resource they are capable of being.

These six-year-old longleaf pines were seeded on a severe site in the Kisatchi National Forest, Louisiana. Broadcast seeding of pine directly onto ground became successful only after effective bird and rodent repellents were discovered.

Parks Phase of AFA Study

Outlined by Mr. Pomeroy

Survey Made by The American Forestry Association in Seven North Carolina Parks Shows Visitors Believe Parks Should Be Built and Supported by Taxpayers

THREE major problems confront North Carolina's Division of State Parks," Kenneth B. Pomeroy, chief forester, AFA, and director of the association's land ownership study told the North Carolina Forestry Association last month. "These problems are lack of space in which to expand as population pressures mount, poor co-ordination between agencies at some levels of government, and failure of some municipalities and counties to meet local requirements, thus throwing a greater load upon state parks."

Lack of space has been of perennial concern, he said. "As long ago as 1934 the National Park Service estimated North Carolina would need 100,000 to 125,000 acres in a state park system. Current estimates by North Carolina officials indicate the present 36,567 acres of land and water should be increased to 100,000 acres by 1970 and expanded to at least 200,000 acres by the year 2000. Exactly how much land must be acquired will depend to some extent upon the willingness of local communities to provide for themselves."

At the present time, only one section of the state, the area around Winston-Salem, has adequate facilities. There, the Hanging Rock State Park in the Sauratown Mountains is complemented on the south by municipal parks at High Point and Winston-Salem, while the federal Blue Ridge Parkway to the northwest serves out-of-state tourists.

Mr. Pomeroy then referred to a study of state park requirements made in 1940, "Park, Parkway, and Recreation Study of North Carolina." "This study has withstood the test of time," he said, "and, except for some out-dated statistics, is as valid today as it was then. It should be up-dated as soon as statistics from the 1960 census become available. The authors recommended nine additional parks in sections not then served by existing parks. Only two of these areas have since received state parks, Cliffs of the Neuse and Hammocks Beach.

Of greater significance than increased park attendance is the fact that many people have learned to appreciate nature and have become park users instead of visitors

"Of equal priority, according to the 1940 study, was the need to round out buffer zones around existing parks and eliminate private inholdings. Some of this work has been accomplished, but much remains to be done," he continued.

Mr. Pomeroy also cited another observation of the 1940 study. The report noted that "in the work of federal and state agencies in North Carolina there is a noticeable lack of co-ordination of effort and integration of plans for the acquisition and development of recreational areas. The administrative and operative policies of these agencies vary greatly; in fact, they are sometimes conflicting. . . ."

Steps to correct this deficiency were initiated in 1960, Mr. Pomeroy told the group, when representatives of the North Carolina Department of Conservation and Development, the United States Forest Service, and the National Park Service formed a council known as the Forest and Park Recreation Commission. Its purposes and objectives are: (1) to exchange ideas and information, (2) to discuss mutual problems, (3) to familiarize each agency with the programs of the others, and, (4) to coordinate activities at least to the point of avoiding duplication of effort.

"Current committee plans involve a trial period in which to weigh its effectiveness," he said. "Then consideration will be given the feasibility of expanding the membership to include other recreational resource management agencies at all levels of government.

"Although expansion of the Forest and Park Recreation Committee to embrace all agencies having responsibilities for outdoor recreation in North Carolina will fill an important void," Mr. Pomeroy continued, "another element, perhaps more ba-

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Potholes are essential for the production of young ducklings. Most of the waterfowl for Mississippi Flyway hunting comes from pothole region.
Photo by Dale Sanders

PRAIRIE POTHOLES

A Vital Waterfowl Resource

By GRADY E. MANN and E. ROBERT PANZNER
Wildlife Biologists, Fish and Wildlife Service

INCREASING recreational demands placed upon the forests of this country have been hitting the headlines for many years. These recreational demands are not restricted to our state, national, and private forests but extend in the upper Midwest onto the prairies of the Dakotas and Minnesota — into the zone designated by wildlife agencies as the Prairie Pothole Region.

Waterfowl conservationists of the Fish and Wildlife Service—the federal organization primarily responsible for management of waterfowl—point out that a recent set of statistics is well worth serious consideration. These figures were presented before the Midwest Wildlife Conference in Minneapolis, Minnesota by Kramer A. Adams of the Outdoor Writers Association of America under the title of "1975 Box Score." These estimates for 1975 serve as a sample of the trends that now face conservation workers of this area:

U. S. population	up	35%
Auto owners	up	60%
Personal income	up	40%
Goods and services (GNP)	up	100%
Paid holidays	up	60%
Paid vacations	up	50%
Persons employed	up	35%
Average work week	down	15%

All of these trends will reflect directly on the *increasing importance of our national outdoor recreational resources.* The wetlands of the prairie pothole country are a highly important part of that resource. Ducks from this type of country determine to a large degree the success of waterfowl hunting in all of the states of the Midwest.

Within the "1960" boundary of the Prairie Pothole Region of Canada, the Dakotas, Minnesota, and Montana lies the most important duck production section of this continent. Better than half of the continental duck population start their careers in these prairie potholes.

Prairie ducks, including pintails, mallards, gadwalls, canvasbacks, redheads, blue-winged teals, and others, swing into all four flyways during

the hunting season. A study of more than 4,000 recoveries from 15 species of ducks and geese banded in the United States prairie pothole region during the nesting season shows that the birds were taken in 42 states. Recoveries within the United States amounted to 91 per cent of the total. Thus, much of the sport of wildfowling nation-wide is dependent on the supply from the prairie region.

Studies by Fish and Wildlife personnel in Day County, South Dakota, proved that under good water conditions this type of pothole country produced about 25 broods per square mile. Broods, averaging six young, are raised to flight stage, which means that each square mile of comparable habitat produces about 150 ducks.

Farther north on thousands of square miles of prairie pothole country in southern Canada, similar water combinations provide habitat for production of five to 50 broods or 30 to 300 young per square mile over thousands of square miles.

Let's consider the location and some of the characteristics of the Prairie Pothole Region. The major prairie waterfowl production area of the United States and Canada is contained within the limits of the "Prairie Pothole Region" as roughly outlined. Approximately 50,000 square miles in the Dakotas, Minnesota, and Montana and approximately 200,000 square miles in the southern prairie provinces of Alberta, Saskatchewan, and Manitoba make up the prime prairie duck production habitat of the continent. Terrain, precipitation, and types of farming vary considerably throughout this region, but a common feature is the sprinkling of small potholes and marshes over the agricultural scene. Fifty to sixty water areas per square mile are frequent in many stretches. In heavily-farmed sections these areas may be reduced to scattered permanent marshes.

Two salient points about this important region are outlined in *A Guide to Mississippi Flyway Waterfowl Management*:

1. "This region encompasses a fertile agricultural area which owes its attractiveness for waterfowl to the approximately 5 million small marshes which

This small marsh or "pothole" is typical of the Prairie Pothole Region. This region includes approximately 50,000 square miles in the Dakotas, Minnesota, and Montana, and approximately 200,000 square miles in the southern prairie provinces of Alberta, Saskatchewan, and Manitoba.

General outline of original Prairie Pothole Region. Solid areas indicate zones of severe habitat loss. Dots show areas where numerous duck production habitat gaps appear.

pockmark the area during the breeding season.

2. Unless some means is found to keep the majority of these small marshes from being drained both in Canada and in the United States, the sport of wildfowling appears doomed for a major portion of the Flyway."

Aside from these characteristics, another important and complicating facet of the problem is that the majority of these potholes and marshes are on privately-owned land.

Because of the duck production potential, the importance of the prairie pothole region has been repeatedly emphasized by the Mississippi Flyway Management Plan Committee. At one point they stress: "One thing is certain: .If the states of this Flyway wish to protect their investment in public hunting ground and refuge areas they must do everything possible to insure the preservation of adequate breeding areas for the Flyway wherever they occur."

A large part of the waterfowl supply for hunting investments of this Flyway comes from the Prairie Pothole Region. A continuing supply is needed to protect those investments.

Looking back briefly, it is somewhat of a paradox that as the drouth of 1957 advanced across the U. S. prairie pothole states, funds for federally-subsidized drainage increased. For example, in the earlier stages of the drouth in North Dakota the amount of federal funds for drainage in 1958 more than doubled the expediture of 1957. Funds for drainage in Minnesota in 1958 almost tripled the amount spent in 1957. This increase occurred at a time when water was at a premium. At the same time, soil bank acreages of the prairie pothole states continued to rise.

Partial or complete drainage continued to reduce the inherent potential of vast areas for duck production in the Dakotas and Minnesota. The outer boundaries of the Prairie Pothole Region are shrinking rapidly. Internally, there are numerous production gaps appearing. Drainage inroads are eliminating vital

Former pothole-type country has now been drained by network of ditches.

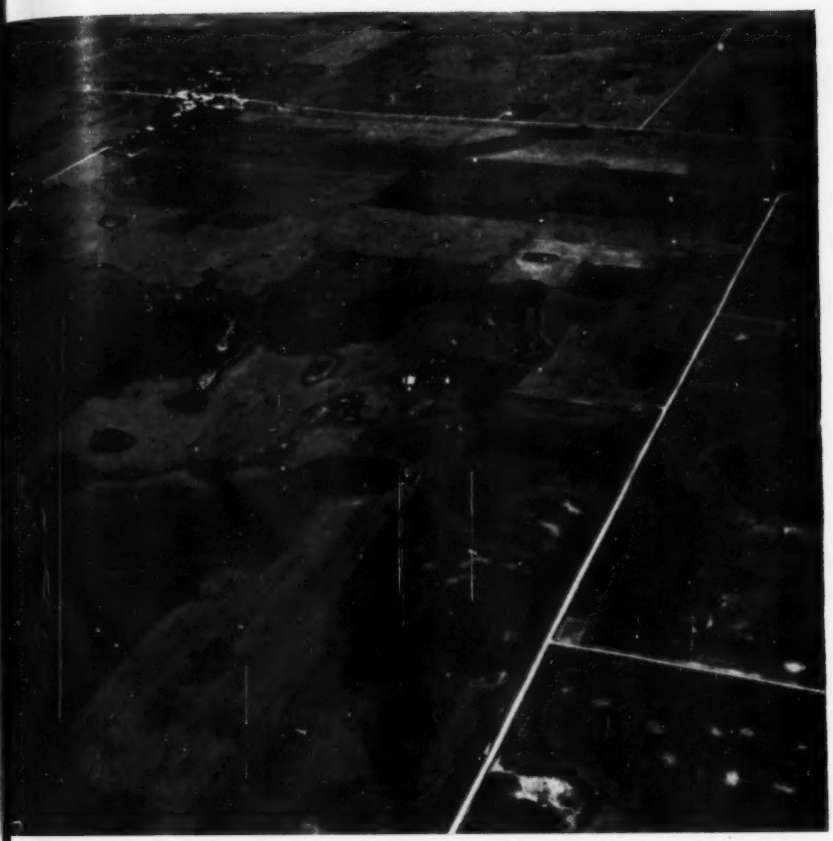
areas for production of canvasbacks, redheads, mallards, pintails, and teals—species that support the bulk of the hunter's bag in the fall.

Of no less concern are reports that the drainage precedent set in the United States is being followed in Canada. Current warnings of this trend come from the Bureau of Sport Fisheries and Wildlife flyway technicians who each year cover extensive areas of the southern prairie provinces of Canada by aerial survey. Likewise, Angus Gavin, General Manager of Ducks Unlimited (Canada), stresses that the prairie and parkland regions of Saskatchewan have lost by drainage many breeding areas that represent a major blow to waterfowl.

Recent studies of drainage affecting waterfowl habitat in the Dakotas and Minnesota show that the smaller, more temporary water areas —the "lifelines of duck production" —absorb the brunt of the damage. Duck production is usually the highest in areas of undulating topography, yet it is in these vital zones that drainage is proceeding at the highest rate.

The devastating effects of drouth on prairie waterfowl production during the thirties and 1959 is a familiar story. Although less spectacular, slower acting, and less widespread, pothole drainage is far more final and, in effect, causes localized "permanent drouth" conditions for breeding ducks.

Wildlife administrators point out that the small water area of the Prairie Pothole Region is in serious trouble. Many waterfowl workers contend that we are long overdue in considering the warning of waterfowl authorities such as H. Albert Hochbaum. In his book *Travels and Traditions of Waterfowl*, Hochbaum cautions, *"Take the potholes out of the Dakotas and Minnesota and we have cut a major slice from the wildfowling of the future."*



Terrain, precipitation, and types of farming vary considerably throughout the pothole region; common feature is sprinkling of small potholes over agricultural scene.

Since this book was published in 1955, one Minnesota waterfowl production study in prairie habitat reports a loss of approximately eight per cent of existing water areas through drainage within one season.

Under the right water conditions, the duck production of the prairie pothole country thrives. When the drouth of 1959 spread over a large part of this prairie zone, the reverse situation occurred. Large blocks of habitat totalling thousands of square miles drew complete blanks on their 1959 duck production. When these drouth conditions occur, the drainage advocates present the argument that "the prairie ducks will now shift into areas of permanent water to breed and raise their young."

Reports by Fish and Wildlife Service technicians do not show that this is the case. Central Flyway Biologist Jerry Stoudt stressed the following in an article which appeared in the *Aberdeen American News* of September 17, 1959:

". . . By 1959 the drouth was so severe over much of the prairie breeding grounds that practically all of the nesting cover was high and dry when the birds returned in the spring. This forced most of the canvasback, redhead, and ruddy duck population to move into the Far North where water was abundant but nesting conditions were far from optimum. Thousands upon thousands of ducks did not nest at all but just sat around in flocks until moulting time."

Information from a Fish and Wildlife Service Minnesota border-prairie duck production study applies at this point. This study was located in steeply rolling, semi-wooded terrain, immediately adjacent to the prairie. Water was abundant in its well-distributed, fairly deep permanent marshes. The 1959 information did not indicate either an increase in breeding pairs, an increase in broods, or an influx of prairie breeding species. In short, these types of habitat did not "take up the slack" of decreased duck production of the prairie zones.

Much of the drainage is being done in the name of "progress," yet there are those who are beginning to question the use of the term as justification for extravagant expenditures of natural resources. For example, Bishop Robert Hatch, writing in the 1959 summer issue of the *Living Wilderness* states: ". . . If we are to deal fairly not only with our land but also with ourselves and with our children, we must work out a new conception of progress. . . ."

Then in the next paragraph Hatch elaborates on this point by saying: ". . . A forest saved from a bulldozer may be more in line with genuine progress than the four-lane highway that some politicians would propose. . . ."

This term "progress" used in furthering drainage programs should be considered critically.

In taking another look at 1959, let us not forget that that year may have served as a grim reminder of what a lack of water on the prairie can do to decrease duck production.

The short-term effect on the duck population was caused in 1959 by natural drouth. The slower, long-term effect will be felt from drainage by man. *As the water is drained from each marsh, another void is left in the duck production potential of the continent.*

The importance of the wetland conservation task is summed up by the Mississippi Flyway Management Plan Committee when they stress that: ". . . Hence the number one job of the agencies charged with perpetuating this resource is to find some way to keep these small marshes from being drained or otherwise destroyed. . . ."

What are some of the approaches that need to be followed to help in the Prairie Pothole Region wetland conservation movement? We need only to study the drainage histories of Michigan, Wisconsin, Iowa, and northern Minnesota to properly evaluate the urgency of those needs.

Briefly, some of the approaches are:

1) New laws should be considered for the protection of waterfowl habitat. Several moves to halt federally-subsidized wetland drainage made little progress during the first session of Congress in 1959. Views on this subject were expressed by the National Wildlife Federation in their Conservation Report of October 2, 1959: ". . . All in all, there seems little prospect that legislation to prevent the destruction of the nation's dwindling wetland resources will fare any better in the second session of the 86th Congress than in the first. And unless conservationists and sportsmen make a concerted

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"We'd require two ordinary crawlers to keep up with our TD-25's production"

...Supt. Lyle Houser, for Wimer Logging Co., Albany, Oregon

"On TD-25 speed, I place a high value;" reports Lyle Houser, superintendent for Wimer Logging Co., Albany, Oregon. "Here we are keeping up our high rate of log production, although the work has become pretty difficult—mainly because we must go so far to get some of the logs.

"We find by sending the TD-25 up the steep grades to the farthest part of the cutting, we get some big advantages. Its speed and power brings it back with 8,000-bf turns quicker than our other tractors can climb back in there empty.

"We would have to use two ordinary crawlers, for sure, to keep our production rate up where the TD-25 now maintains it."

The Wimer "show" logs 175 mbf of old growth douglas fir and hemlock daily in the Raw Creek area. And from the steepest terrain, the "25" brings 5 to 8 mbf per turn!

With the 230-hp International TD-25, you do own huge production-boosting advantages. Only the "25" gives you famous Planet Power-steering with full-time "live" power on both tracks—to make full-load turns, and eliminate load-limiting "dead-track drag"!

Only the "25" provides on-the-go Hi-Lo power-shifting—to give instant matching of power to conditions, and prevent "gear-shift-lag"! Only the "25" is powered by the turbocharged DT-817!

See how closely the TD-25 can match the production of *two* ordinary clutch-steered king-sized crawlers on your mountain logging operations. (Whatever the big margin is, it's pure "gravy" for you!) And compare speedy TD-25 slope-hugging benching performance to big crawlers that "nose the bank" or slue. Let your International Construction Equipment Distributor demonstrate!

In the background is a sample of the tough terrain the "25" is logging, at almost twice the rate of ordinary king-sized crawlers. Hi-Lo power-shifting makes the TD-25 the only 4-speed torque-converter crawler *and the only one with load-matching efficiency-range control!* No dangerous reverse clutching down-hill, towing a load with "25" Planet Power steering!

Here a Wimer Logging Co. TD-25 brings out a load that scales almost 9,000 bf. Only the "25" is powered by the direct-start 6-cylinder International DT-817 engine. Dual valving makes this high-torque Diesel a "free breather" to give peak turbocharging efficiency for full-load performance from sea level to timberline!

TREE FARM

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International Harvester Co.,
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A COMPLETE POWER PACKAGE

Woodsman! SPARE THOSE

A 69,000-volt electric power transmission line in Licking County, Ohio is being called "the Blue Heron Line" in tribute to a woods-full of squawking, cackling, long-legged birds and their equally noisy offspring. The nickname will probably stick as a reminder of the summer when a big utility company went chicken-hearted over birds and interrupted a major line-building project rather than disturb these strange fish-eating creatures during the nesting season.

Work on the Ohio Power Company's $400,000 project was proceeding on schedule until one day early last summer when Bill Frederick, a supervisor for the Davey Tree Expert Company, entered a dense 40-acre woods on the Moses Whitehead farm four miles southwest of the village of Granville. The Davey people had the contract to clear trees from a 60-foot right-of-way for the power line, which was to run through the center of the Whitehead woods.

What Frederick discovered was a heronry—sometimes called a rookery—which is a nesting place for the giant birds with stilt-like legs, swan-like necks, and a wingspread of six feet or more. Frederick showed up next morning at the power company's division office in Newark. "We've got a problem," he told Walter Spitzer, superintendent of electrical operations, and John Sanborn, line foreman.

When he told his story of the birds, an atmosphere of perplexity settled over the office which was accustomed to handling difficult problems, such as windstorms that blow down electric lines and vandals who test the velocity of their rifles by shooting holes in insulators. These are routine annoyances. But herons! There was nothing on this subject in all their books on transmission line construction. Moreover, this particular job had high priority since the needs of a growing community were involved and contracts had been awarded; in fact, poles were being set and the lines were about to be strung.

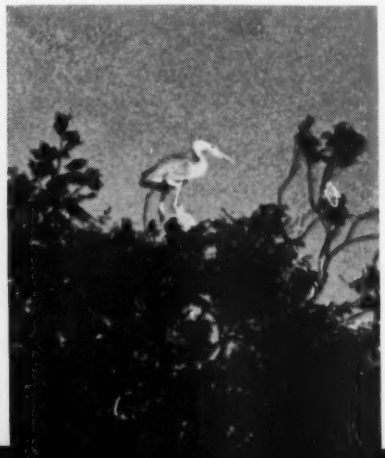
Counsel was taken among division executives and junior executives. This was no problem relating to volts or kilowatts, transformers or generators. Someone had to weigh values on a new set of scales: the thousands of dollars' loss to the company through delay of an important project, against the survival of an undetermined number of young birds who were even then waiting impatiently in their nests for their parents to return from a nearby lake with the fish and frogs which never seemed quite adequate to appease their insatiable appetites.

Clarence Feil, division manager, saw his way clear. The birds must be spared. Ohio Power would never be forgiven for ripping into the woods and felling the tall beech trees in which the herons were nesting. Yet the decision to halt the job, at considerable expense, had to come from higher authority. The case was promptly carried to the company's general offices in Canton where A. N. Prentice, vice president and general manager, cast his vote with the herons. The tree-cutters were instructed to stay their saws and axes until the young birds were old enough to depart the nests under their own power. This might be a month or six weeks, they discovered upon reading heron literature which indicated that the young birds remained in or near their nests until almost full-grown.

Project schedules were revised and bookkeeping changes were made at Newark and Canton and even in the headquarters of the parent company, American Electric Corporation, in New York. As a result, an entire generation of herons would owe its existence to the humane instincts of an American business enterprise. Unaware of their debt, however, the heron fathers and mothers flew hundreds of sorties each day, bearing fish to the chattering, squawking babies. This was a sight which the Ohio Power Company had to see. A committee visited the woods to witness a scene that is

Light blue heron eggs, found broken on ground, are about size of chicken eggs.

This light-colored great blue heron perched in tree top is not yet fully grown



Line foreman John Sanborn inspects crudely built nest that fell during storm.

BIRDS

By CLAIR C. STEBBINS

privileged to few save professional naturalists.

What they saw they will long remember. In the topmost branches of a half-dozen beech trees, at least 75 feet tall, the giant birds were standing motionless as statues, as if on the lookout for a possible enemy. In the limbs around them were dozens of carelessly-built nests, sheltering young birds ranging from the newly-hatched to some which were almost as large as their four-foot tall parents.

Suddenly there was a soft rustle of wings overhead and a dark shadow almost blotted out the small patch of sky visible through the heavy foliage, for this woods was dense and forbidding to one not familiar with the enchantments of even a small forest. A mother heron had arrived from a fishing trip to Buckeye Lake, six miles to the south. In her slender, bayonet-like beak she gripped a fish that was at least eight inches long. Settling down on the disarray of sticks which comprised her nest, she began to dole out her catch to two ravenous youngsters almost her own size.

It was an eerie scene, for the air was soon filled with screams, squawks, and cackles, punctuated by the pistol-like cracks of violently flapping wings as mother and offspring strove, in a frenzy, to main-

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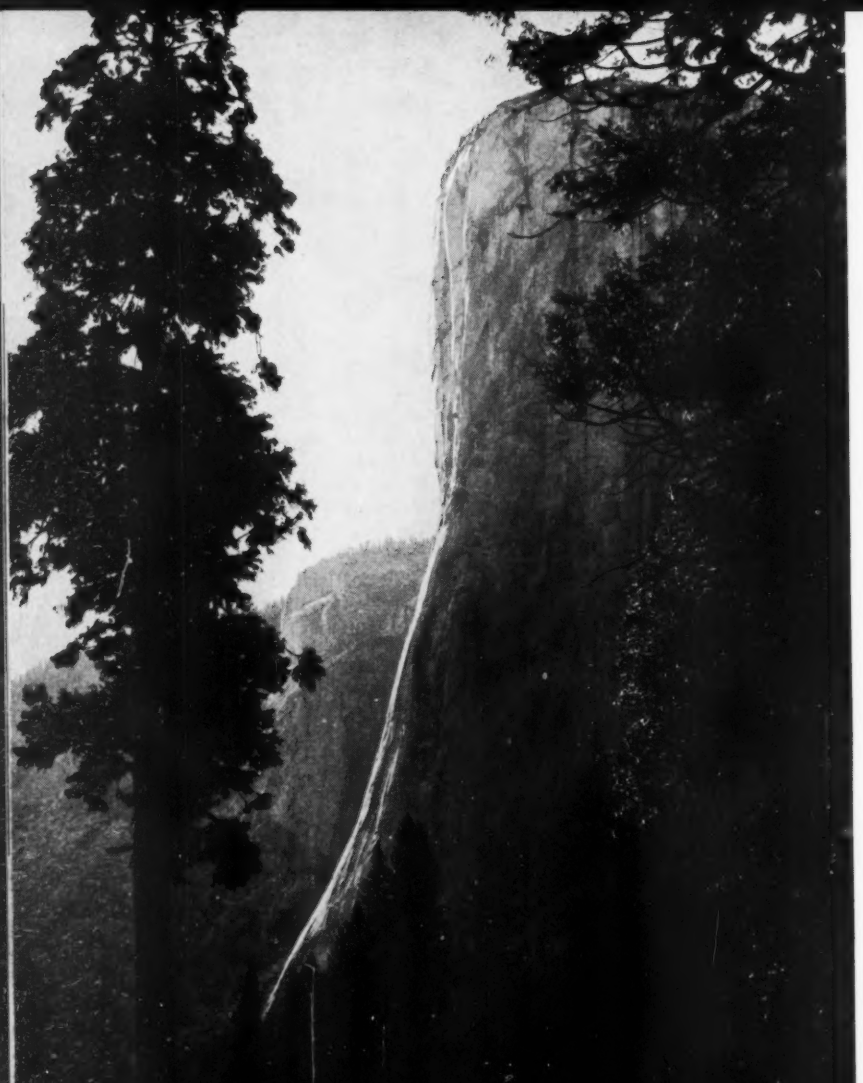
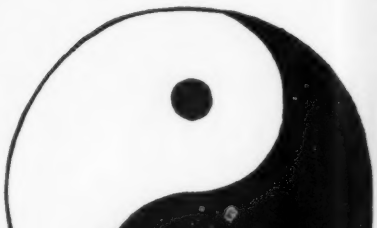
Work stopped at edge of Moses Whitehead woods when heronry was discovered

With her neck arched and wings outstretched, great blue heron is picture of grace as she alights on her carelessly-built nest in the tree



Tao tells us "Nature is already as good as it can possibly be. He who seeks to improve it will spoil it. He who tries to direct it will mislead it and become lost himself."



Yin-Yang, symbol of Taoism

TAO:

Voice of Nature

By F. J. MacHOVEC

HAVE you ever stood and wondered at the exquisite beauty of nature? Perhaps it was the magnificent color of a sunrise or sunset, the countless shades of green in a mid-summer forest, the silent majesty of a stately tree or snow-capped mountain peak. And, witnessing this splendor, have you ever thought that Nature itself is a rich source of inspiration for sound moral living? After all, Nature has been cultivating the earth far longer than man, and without the aid of modern science to help it along.

Such a Nature philosophy does exist. It originated in far-off China thousands of years before the birth of Christ. While there have been many "nature cults" throughout world history, Taoism (pronounced DOWISM) is one of the very oldest and perhaps the most universal and practical in its applications. To understand this timeless philosophy, let's explore some typical differences between East and West.

For example, rice growing in Asia is a labor of love. Each grain is

patiently planted and cultivated by hand, using the same time-consuming, centuries-old method. But in California, growing rice is a typically American business. An airplane, like a great winged saltshaker, broadcasts seed by the tens of thousands. Is this difference one of technology only? In recent years many mechanical devices have been introduced to the rice paddies of the Orient. American technicians stressed the increased efficiency of the machines, the tremendous saving in time that would result from their use. The yellow-skinned farmers smiled but were totally unimpressed. "What," they asked, "does one do with the time saved?"

When the Asian views our great progress in air transportation, his approach is very much the same. It is now possible to fly from New York at breakfast and land in California for lunch. It takes five hours, 70,000 pounds of jet fuel, and a speed of over 600 miles an hour. "What," the Asian asks curiously, "does one do with the hours saved?" He wonders why we are in such a hurry; it is an interesting question.

And so it goes. A Westerner walks along a path, sees a beautiful flower at his feet and, like Tennyson, "plucks it out of the crannies." The Easterner, walking the same path, stops to admire a similar flower but walks on, leaving the flower to be appreciated by others who will pass later. In one case the flower is ultimately destroyed. Pulled from its habitat, it must wither and die. In the other case, it is left within Nature to radiate its beauty to all who happen upon it. To the Oriental, our gaily-decorated Christmas tree is artificial. He would prefer to gaze upon the pine in an even more majestic setting—where it grows, within Nature.

East and West differ, then, in a way which is far more basic than the influence of science and technology. While we in the West are justly proud that we lead the world in practically every phase of scientific research, the East has had for thousands of years an awareness, a reverence for Nature which we seem to have lost, if indeed we ever really possessed it. Technological progress is important, of course. Through its use we have been able to produce better crop yields and healthier strains of plants. But the simple, uncluttered way of the ancient East offers us an appreciation of these things. In fact, Tao ("DOW") can be translated as "Way" (or "Truth," "Nature," or "Ultimate Reality") although the word defies literal translation into simple words.

The concept of Tao originated in China so many centuries before Christ that scholars have difficulty assessing its age with any accuracy. Some say it was in use thousands of years before Christ by one of the great emperors of ancient China. Most popular origin, however, dates back five centuries before Christ by a man named Lao Tze (which means Great Teacher or Worshipful Master). Lao Tze was born about 570 B.C. in the Chinese state of Chou. Legend has it that he was Keeper of the Archives and a wise and learned man. When he was 90, he left his work to go into the surrounding hills and await death. But the frontier guards refused him passage through the city gates until he had written down his philosophy for the guidance of later generations. Lao Tze sat and wrote the 5000 words which became the *Tao Teh King* (pronounced DOW DUH CHING) and the sourcebook of all Taoist teachings.

The Han Dynasty's Emperor Ching Ti (156-140 B.C.) declared the Book of Tao a classic. Another emperor had printed at the beginning of each volume: "The root of all things, teacher of kings, and the most precious jewel of the republic." Chang Ch'ien-ming said, "With Tao, a corpse could govern the Empire." And the famous Kublai Khan ordered all Taoist books burned except the original *Tao Teh King*—evidence that many books had been written departing from the true concept of Tao. But what is Tao, and what does it teach?

The Tao, it is said, has no beginning and no end. It is everywhere, but if you search for it you cannot find it. It existed even before the beginning, and it will exist after the end. About the closest description of Tao for Western minds, and certainly the least debated by scholars of the Orient, is that Tao is Nature.

The symbol of Taoism is Yin-Yang. It denotes the dynamic balance of the forces within Nature. The Yin is the black portion of the figure, the Yang is the white portion. In Yin-Yang is seen the interplay of night (darkness) and day (sunlight). Here, also, is the alternating of the seasons, the fairness and the foulness of weather. Here is the brightness of growth and the darkness of death, the white snows of winter and the dark stormclouds of summer, the hardness of rock and the softness of loam, the male and the female. It is an eloquent testimony to the perfect balance of Nature.

Within the darkest area of Yin there is a bright spot of Yang, and amid the brilliance of Yang there is a bit of the darkness of Yin. In the best you will find some badness; in the worst you will find some good. And so, through the vast, uniform whiteness of winter snow, the crocus blooms with humble beauty. The sharpest edges of rock can be rounded and smoothed by the relentless force of weather and time. There is the brown bark of the naked tree, but bright green leaves will come soon enough. And the earth is never so granite-hard in mid-winter that it cannot become soft and yielding after spring rains.

Tao warns against the danger of extremes. "Going to extremes is never best," it cautions. "For if you hone a blade to its sharpest edge, it will become dull too soon. If you become very wealthy, you invite robbery. If you are proud and arrogant over your good fortune, people become envious. So, when you have achieved your goal, be content to stop there. This is the way of Nature."

Have you ever felt that you were at times a bit too talkative? The Tao teaches that "all things in Nature work silently. They come into being, fulfill their purpose, yet never make any claims." If Nature, possessed of such breathtaking beauty, yet with such inexhaustible power, can accomplish quietly its infinity of activities, how much more can we hope to accomplish with speech?

But perhaps the hardest lesson for us in the West is that Nature cannot be improved upon. Throughout the length and breadth of this nation, concrete superhighways charge through once-silent forests. The neon lights offer "Vacancy" to the night air. The motel chooses the high ground where pine trees once pointed to God. "Anyone who tries to improve Nature must fail," Tao tells us. "For Nature is already as good as it can possibly be. He who seeks to improve it will spoil it. He who tries to direct it will mislead it, and become lost himself. Consider how Nature functions: some things precede while others follow. Some things appear hot, others cold. Some things are very strong, others weak. Some things reach up, while others hang low. And so, the truly wise

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Smoke clouds rose from hills northeast of Boise, framing the capitol dome

Rebuilding the Boise Watershed

By DENNIS HESS
Bureau of Land Management

Then, a few weeks later, flash floods swept down from the burned-over foot hills, strewing silt and boulders over fields, in many places to depth of 3 feet.

The flash floods deposited tons of silt and muck on Idaho's capital. Scores of basements were filled with muck; lawns, streets were buried under silt.

"JUST another grass fire." "Why such a hullabaloo about a grass fire? They happen every day." "What can it hurt? Grass grows back fast."

Opinions like these were heard on many street corners in Boise, Idaho on August 3, 1959 as crowds gathered in the sultry heat to watch action begin on two small smokes in the foothills north of town. Federal and state agencies were mustering resources to stop a range fire.

In a few minutes the fires grew until great tongues of flame could be seen reaching up through white billowing clouds of smoke. A big C-97 tanker and two converted B-25 bombers under contract to BLM continuously shuttled over town between the fires and the nearby airport. The planes could be seen as they dived over the flames dropping thousands of gallons of fire retardant slurry, a mixture of calcium borate and water. Scores of trucks moved up a dusty hill to the edge of the fires. Some of them were tankers, some carried men and equipment, and others were heavy transports loaded with bulldozers.

For awhile the borate bombing seemed to be subduing the fires. The flames of one fire near the Boise reservoir were knocked down and ground crews quickly finished it off, but the other fire paused only long

enough to gain momentum. After a short lull it broke out of Rocky Canyon and swept like a raging holocaust up the steep slopes of Boise Ridge. National forest lands on top of the ridge were threatened, but continued borate bombing kept the fire out of valuable timber stands.

During the night dozens of bulldozers and hundreds of men employed by BLM and the Forest Service got a line around the fire, but not before 10,000 acres of valuable watershed were destroyed. The fire burned with such intense heat that the soil was stripped of nearly all vegetative cover and organic matter. Public announcements from BLM pointed out the serious effects of such fires. The blackened hillsides remained as a stark reminder of man's carelessness, but many people passed it off as "just another grass fire." That is, until the early hours of August 20, 1959.

A low, ominous rumbling noise approached the sleeping city. Suddenly a deluge of mud, rocks, and debris poured into Idaho's capital, borne on the crest of the worst flood in the city's history. Hundreds of basements were filled with muck. Lawns, sidewalks, and streets were buried under the slimy silt. Sewers were clogged. Many business establishments were damaged. Silt, boulders, and debris were deposited to a depth of three feet on nearby cropland. Improvements, machinery, and many farm animals were destroyed. Some of the boulders carried to the flatlands are said to have weighed 25 tons.

It was obvious that most of the flood came from the area recently burned. However, part of it came from areas in the foothills north and east of town which were burned in 1957 and 1958. The force and amount of flood runoff was directly proportionate to the degree of recovery from burning; areas that had not been burned recently produced less flooding.

In a short time a torrential storm had dumped an inch of rain onto the hills around Boise. The accumulated water roared down the naked slopes of the burned areas. A myriad of gullies formed; these merged near the bottom of the slopes to gouge out a channel which in many places was six feet deep.

County and city police acted fast to raise sleeping citizens with howling sirens and loudspeakers. As a result of their alertness, no lives were lost. The flood swept over more than 50 city blocks, causing damage estimated at over half a million dollars.

To deepen the wounds, further flooding from the denuded area occurred on September 22 and 26. Much of the same property was damaged; the sediment load of this flood, however, was smaller.

It was a grim lesson on the seriousness of grass fires. Emergency action was necessary. The Bureau of Land Management organized meetings of landowners and officials from city, county, state and federal agencies. Plans were developed for im-

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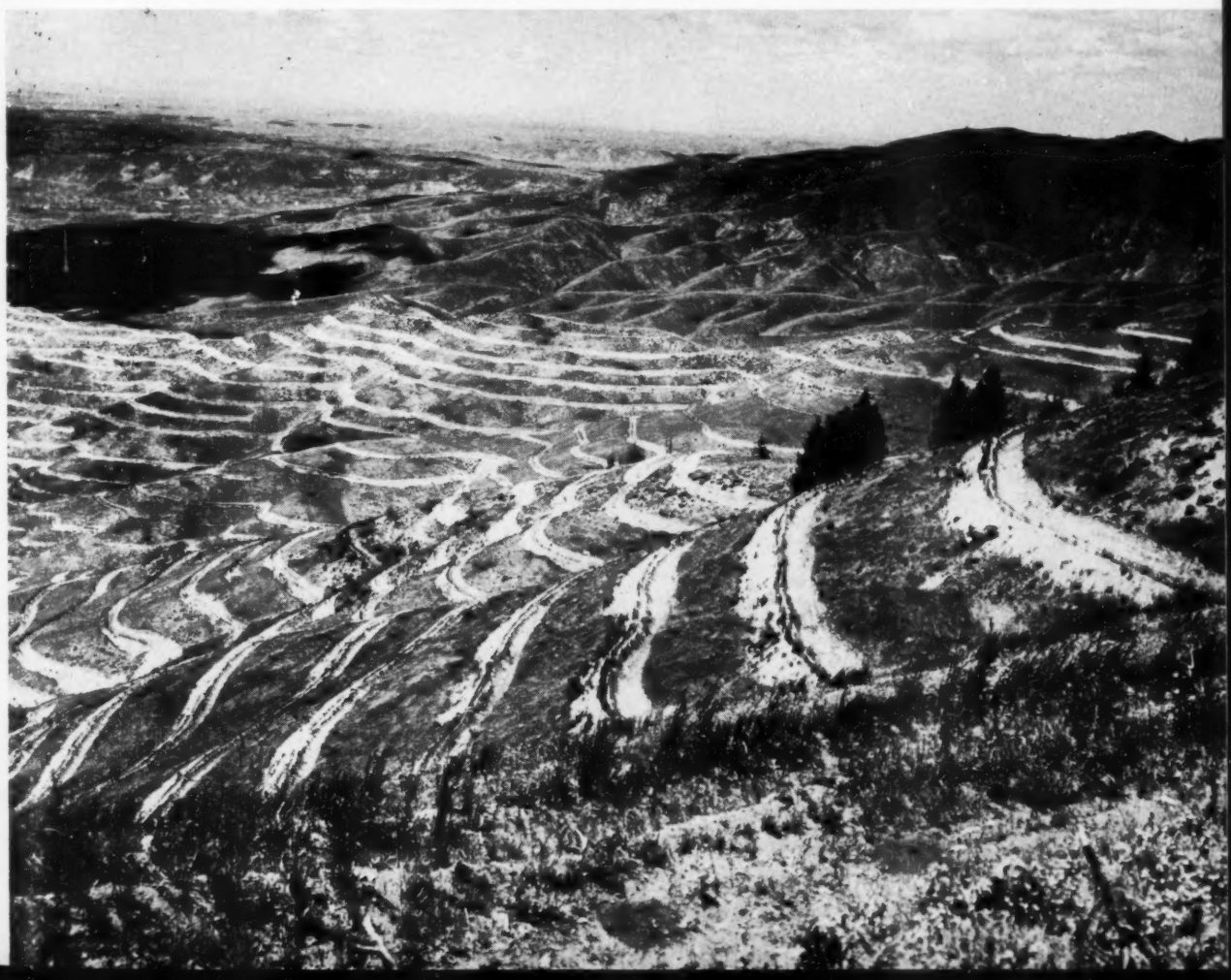
One year later—August 1960. The contour trenches held up amazingly well despite the abnormally severe weather which occurred during winter and spring. Good stands of seeded grasses have developed on many slopes that had been denuded by fire



Photos courtesy of Ontario Department of Lands and Forests.

YOUR VALLEY

All life has vanished. There are no animals, no birds, no people. Nothing is left but one monstrous black scar, stretching over all the body of the land.

This article is reprinted from Rod & Gun—Forest & Outdoors, *September, 1960, through courtesy of Rod & Gun Publishing Company, Quebec, Canada.* Rod & Gun *is published monthly and contains articles on conservation, boating, hunting, camping, and fishing.*

In some regions it takes as long as 100 years to grow an acre of forest, but only 50 seconds to destroy it.

Y IS A CORPSE

By WILLIAM OAKER

YOU are standing on a high hill. It is late afternoon of a hot, midsummer day. Far below you lies a green expanse of forest, stretching all the way to a distant horizon, broken only by an occasional sparkling lake or twisting river.

Miles away, across the floor of the valley, you see a tiny clearing of houses clustered near a sawmill. Thin strands of smoke drift up from chimneys. It will soon be suppertime. Men will be coming home from work.

The sun is going down, growing in size and cooling from hot white to warm vermillion as it drops toward the west. The gigantic, 60-foot-deep forest carpet begins to alter in shade, its mottled greenness darkening. The lakes lose their gleaming blueness and slowly begin to reflect the changing sky: pink and mauve, then orange and purple. Soon all will be black.

As the sun loses its glare, it becomes easier to make out the thin smoke trails drifting up from the forest, each slender skein telling you that someone is there—a human being hidden from sight beneath the towering, leafy carpet.

Other things are hidden beneath the trees. Wildlife abounds: deer, moose, rabbit, bear, fox, porcupine, mink. Hundreds of species of birds can be heard.

Many wispy smoke threads can be seen now, each one rising straight up—disappearing into a clear blank-pink sky. Some are close by. Others are many miles away—barely visible.

In a few hours it will be night. A dry wind ruffles the surface of the forest. It is cooler now. The heat of the day is over. The silk-like skeins of smoke become sporadic and wavering, emerging from the tree tops in short puffs. One of them holds your attention. It seems thicker—less fragile. Then, for entire minutes, it disappears altogether. Finally, as though it had been gathering beneath the trees, it breaks through like a miniature cloud. It settles again, then billows forth, heavy and grey. More minutes pass.

New life begins to appear on land that was a thriving forest but was blackened by a raging fire

As you watch, its source seems to grow larger. Now the smoke is pouring out, rolling away to the south. The source becomes still larger. From your hilltop it looks like a rapidly festering sore. As you watch, the sore changes shape, expanding along one edge, pushing forward and widening at the same time.

The sore's swelling edge reaches a small lake. It hesitates. Then—ever so slowly—it probes to the side with one hungry tentacle becoming larger and larger until it engulfs the shoreline. Soon the lake is entirely smothered, invisible beneath a cloak of thick, rolling smoke.

The sun is much lower now. You can make out glints of flame darting and flickering about in the trees, like brilliant little elves playing peek-a-boo. Now and then a flaming ogre bursts into view, thumping his great fiery chest and roaring his defiance, then settles back into the mass of smoke and trees.

The festering sore takes a new form: like a triangular cut of pie, flames licking out from the broad, curved, outer edge. It seems to grow before your eyes. Now it is more than a mile wide.

The sun is almost entirely down. The wind has risen. The flames no longer resemble flickering elves. Rather, there is one massive advancing wall of fire, 50 feet high, belching smoke 1,000 feet higher. It races through the trees with frightening speed—faster than a man can run. Every few moments a fire brand explodes rocket-like out of the inferno, soaring as far as a mile ahead.

Darkness falls. Only the distant circle of fire is visible. It twists and turns like a huge snake slithering sideways, pausing when it strikes a lake or river then growing longer before rushing on—always advancing, always growing.

As you sit on your hill, you can smell the fire, even though it is still miles away. At this distance the odor is curiously fragrant, like burning leaves on your front lawn in the autumn.

The hours pass. The moon begins to rise, only to be obscured by the rising smoke. The fire brands are more numerous, each soaring torch carrying with it the seed for the birth of a new fire.

It is many hours past midnight. It occurs to you that wherever you look, the fire has wrought destruction. The point where you had seen the village has long since been passed over.

The night goes on, hour after hour. The line of fire is now far away, and the horizon is a thin, flickering, yellow-white line in the distance. Little glints of yellow-red flicker close by. The smell is heavy —no longer fragrant.

Sunrise is not far off. Soon a new day will dawn. The eastern sky holds a hint of approaching light. The light begins to lift and spread. In another hour the sun will be up.

The valley below remains dark, hidden in shadow — as though ashamed. Then, like a giant opening curtain in a theatre, a blaze of brilliant light sweeps headlong across the land. It hurts the eyes to watch.

As you look down, everything is smoldering blackness. Bits and pieces of once-proud trees now stand gaunt and twisted. All else is flat. From your hill, once-sparkling lakes now look like ash-grey puddles. All life has vanished. There are no animals, no birds, no people. Nothing is left but one monstrous, black scar, stretching over the whole body of the land. Your valley is a corpse.

massive wall of fire, 50 feet high, vanced rapidly through the forest

Many Nations, One Goal

(From page 15)

phytocides, soil fumigants, antibiotics that act systemically, chemicals that inactivate toxins, and improved methods of using the time-honored fungicides. An example of the successful use of chemotherapy is the control of the white pine blister rust by spraying the trunks of young western white pines with a solution of Acti-dione (an antibiotic). A similar prospect in insect control is the use of systemic insecticides which may be sprayed on or introduced into the tree. In addition to aerial spraying with chemical insecticides, which constitute a potential hazard to fish and wildlife, promising means of control are offered by parasites, predators, and microorganisms. There are at least 80 species of bacteria, 215 species of viruses, 460 species of fungi, 250 species of protozoa, and more than 100 species of nematodes capable of killing their insect hosts. Italy is studying the use of ants as a possible means of insect control.

Modern concepts and advances in silviculture and management were presented by speakers from various parts of the world. Among the subjects discussed were "orchard" versus "naturalistic" silviculture, nursery and planting problems, new methods of improving stand composition, forestry on arid and semi-arid lands, tropical forestry, and the influence on silviculture of the prices of forest products.

Great emphasis was placed on the dependence of silviculture on ecology and genetics for continued progress in producing more and better wood. As one speaker pointed out, "The forester deals with a productivity system of which the forest stand is one part. Therefore, understanding and control must take cognizance of the processes within the ecosystem in which the forests participate." This concept leads to the study of such matters as the evaluation of site quality from ecological factors, soil fertilization, and modification of the nutrient cycle through silvicultural practice.

In the field of genetics, man is attempting to increase the rate of growth and to improve the quality of forest trees by tampering with their genes and chromosomes. Among the methods used to bring about mutation and polyploidy are hybridization, irradiation, the application of drugs, and heat treatment. The experimental remaking of tree species and genera has begun only recently, but already the complexities and possibilities are evident. Many forest trees of tomorrow may have very different characteristics and behavior from those of today.

Several speakers presented detailed reports on the continuing improvement of methods of making forest inventories—the first step in forest management. Others discussed planning and control of the managed forest and the conversion of old-growth forests to managed stands. Public co-operation and control, co-operatives, and other approaches to the ubiquitous problem of improving the management of small woodlots were considered without finding any generally applicable and effective solution.

Opportunities for foreign investment in forestry were stressed, with the caution that a thorough investi-

At ceremony were: (front left) Mortimer B. Doyle, NLMA, Thomas McHugh, Atlantic Lbr. Co., President Eisenhower, Sen. Geo. D. Aiken, Sen. J. L. McClellan; (back) Henry Bahr, NLMA, J. L. Jones, Union Lbr. Co.

President Eisenhower Receives Unusual Clock

AFTER President Eisenhower signed the proclamation officially designating National Forest Products Week, the National Lumber Manufacturers Association presented him with a unique gift – a clock made from 10 species of American wood. Mr. Thomas J. McHugh, chairman of the board, Atlantic Lumber Company, and president of NLMA made the presentation.

The center segment of the clock was made from a piece of yellow pine which had been removed from the White House during the Coolidge administration after 112 years of service, beginning when James Madison was president. The outer hexagonal rim is American black walnut, while the largest circle is black cherry, and forms the background for the hour markers. The hour markers at 12, 3, 6, and 9 are hard maple (double rounds); at 1, 4, 7, and 10 the markers are sugar pine; and the markers at 2, 5, 8, and 11 are western hemlock. The circles of wood behind the White House piece in order are: spruce, Douglasfir, and redwood. The hands are all quartered oak.

We were going to mail you a letter
but won't you please consider this
as our letter to you?

Dear Member of The American Forestry Association:

You probably know a couple who have just bought or built a house and whose yard has one or more shade trees on it. Or, you know others who have lived happily on city or country property for years, with trees on their grounds. Might be neighbors, business associates, friends, relatives.

These people enjoy trees, are nourished by their beauty, benefited by their summer shade, and fascinated by the variety of their seasonal changes. They have a friendly feeling about trees in gardens, in parks, in forests.

A year's membership in The American Forestry Association makes a much appreciated gift to such people. We know this because we hear from our members with like interests from time to time:

"Being a Life Member for some years, I want to say this Association is one that really keeps me interested, posted, and keyed-up in reference to your many worthy activities."
-- D.W. Pfaff, Cincinnati, Ohio

"Reading AMERICAN FORESTS gives me a great deal of pleasure. I try to set aside a couple of afternoons a month to go through current and back issues."
-- Dick Reichert, Davenport, Iowa

"Many times I have had the impulse to write you to express my appreciation of your fine magazine, especially your editorials. I enjoy them so much. Your clear and objective analysis points the way for many lay conservationists, and I am grateful to you for this."
-- Mrs. M.T. Weatherford, Arlington, Ore.

"We live on a farm and when things get me down, I go to our beautiful woods....When I think that the hand of mere man had nothing to do with the fashioning of all woodland beauty, I can find peace and contentment. So I enjoy the articles in AMERICAN FORESTS."
-- Mrs. J.C. Hale, Stow, Ohio

The gift of membership in The American Forestry Association has special appeal at Christmas time. It includes so much and is so little trouble to you — it is such an easy gift to buy and send.

Specifically, each 1-year gift at a cost of $6 includes: the 1961 Membership Card inserted in a Letter of Welcome from The American Forestry Association; the special New Members' 51-Tree Edition of KNOWING YOUR TREES; the gift of AMERICAN FORESTS each month of 1961, plus this year's holiday issue of the magazine to arrive in time to say Merry Christmas.

Turn this page over, fill in the space for the names and addresses of these specially favored gift recipients of yours, tear it out and mail it back to us. Be sure to tell us how you want your name to appear on the Christmas Gift Cards we'll send to notify them of your thoughtfulness.

Sincerely yours,

Fred E. Hornaday

Fred E. Hornaday
Executive Vice President

FEH/LH

(over)

gation of any proposed investment by competent people is a vital necessity. Although profit is the dominating motive, the investor should recognize that he has a definite obligation to improve economic conditions and the standard of living in the country where he operates.

Striking variations in logging methods exist, from the use of elephants in the Far East to tractors and cable operations elsewhere. Much attention was paid to the effect of mechanization on forest labor efficiency, to the training and safety of loggers, and to the social progress of forest workers. On the latter subject, Professor Saari remarked that forestry is faced with more and greater obstacles than most other industries. "But this is no excuse . . . to let forestry remain undeveloped in this respect. Foresters are responsible for the social progress of forest workers. If they are unable to cope with this, they are not fully competent foresters."

"Coexistence" constitutes a problem in forestry as well as in the political world. As one speaker explained: "[The Mediterranean] countries are still facing the acute problem of sheep and cattle grazing in the forests on a basis of coexistence. But it is a forced coexistence, imposed long since by social, economic, and traditional reasons. Hence, the question arises: Can we convert the already existing and forced and uncontrolled coexistence into a rational one, i.e., based on biological and economic balance of forestry and inforest grazing?" His answer was both "yes" and "no"—that in some places integration is possible, while in other places segregation is essential. A similar question arises in all parts of the world with respect to the many uses which may be compatible or incompatible depending on local conditions. Presumably the

Merry Christmas

Merry Christmas

Merry Christmas

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G-70

answer lies in multiple use—properly interpreted and intelligently applied.

Several sessions were devoted to consideration of range management, watershed management, wildlife management, and recreation management as important aspects of multiple use of forest lands. A rather gloomy picture was presented of the future of wildlife in Africa, once the home of teeming millions, where the permanence and effective management even of existing preserves is in doubt. The discussion of parks and natural reserves elicited from a speaker from the United Kingdom a statement, which did not meet with unanimous agreement, that multi-purpose use should be preferred in all cases where there is no compelling reason to the contrary. "In this way an incentive can be given towards improved land use policies, and some relief will be afforded from the embarrassing excess of demand over supply for land for so many varied purposes."

In the field of wood technology, the electron microscope, which uses sections so thin that a pile of 50,000 has a thickness of only one millimeter, and which has a magnifying power a hundred times that of the light microscope, is revealing in the most minute detail the structure of wood. Presentation of the latest findings was replete with such terms as microfibrils, micelles, anisotropy, and rheology, and dealt with the relation of these structural elements and physical properties to the behavior of wood under various circumstances.

The chemical composition of wood is being studied with similar thoroughness. Successful chemical utilization of wood on a large scale will probably require profitable use of all of its three primary constituents – the hemicellulose, cellulose, and lignin fractions. The director of the Forest Products Laboratory at Madison, Wisconsin predicted with confidence that "wood will some day equal petroleum as a source of industrial chemicals." Such a development will be of great benefit not only to the forest industries but to intensive forest management.

The Congress was informed of the latest advances in wood processing. These include such items as automation in sawmills and other processing plants, improvements in sawing technology, more efficient methods of wood preservation, new pulp sources and processes, and integration in wood utilization.

Recognition of the supreme importance of education was both explicit and implicit throughout the Congress. "Probably no other profession," said one speaker, "comprehends such a wide variety of technical skills, embracing at the same time both art and science, as forestry." Special stress was laid on the need for strengthening present training at both the professional and technical levels, and of establishing and expanding educational facilities in underdeveloped countries.

Many of the papers were available in all three of the official languages of the Congress — English, French, and Spanish. Their volume is indicated by the answer of a clerk in the Documents Division to a request for a complete set: "Did you bring a wheelbarrow?" In view of their own shortcomings as linguists, Americans were envious of the facility with which most of the foreign participants spoke English.

Conclusions and Recommendations

At its final plenary session on September 10 the Congress adopted a comprehensive set of conclusions and recommendations. A few of the more important may be summarized as follows:

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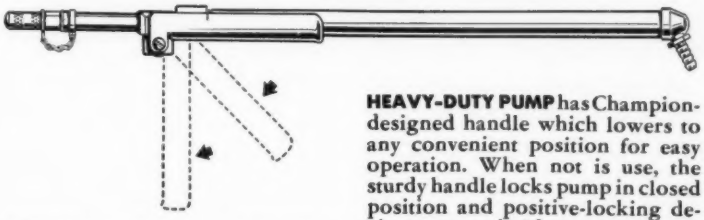

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There are many members and friends of The American Forestry Association who find it impractical to contribute to its educational activities during their lifetime. Gifts in the form of a bequest are welcomed. Officers of the Association will gladly consult at any time with those who wish to know more about designating gifts for educational work in forest conservation.

Following is a paragraph suitable for incorporation in wills:

"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street, N.W.
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The Congress agreed that the multiple-use concept presents new challenges and new opportunities to foresters everywhere. It accordingly urged all governments to study, develop, and encourage sound concepts of multiple use as a means of providing optimum satisfaction of human needs from forest and related lands.

The failure of output and consumption of wood to rise in the underdeveloped regions was cited as the great disappointment of the last decade. A gradual spreading of the pulp industry and other forest industries to these regions was recommended, accompanied by the training of forestry and administrative staffs. Governments generally were urged to encourage or adopt plans for forest production and development geared to the prospective requirements for forest products. Systematic studies to evaluate intangible forest values in quantitative terms were proposed.

Silviculture and Management. Emphasis was placed on the importance of thorough knowledge of the forest as a dynamic ecosystem, on the development and application of effective inventory control procedures, and on the formulation of effective management plans. Recommendations included the establishment by FAO of uniform procedures for recording and registering essential data on experimental plantations; exploration of the possibility of obtaining preferential rates for air transport of forest-tree seeds and plant material intended for experimental use; and promotion of a campaign of "Forests for the Year 2000" to assist in reservation or creation of forests in the countries where forestry is not well developed.

Genetics and Tree Improvement. The Congress recognized that selection, hybridization, polyploidy, and mutagenesis offer exciting opportunities for tree improvement. It recommended that FAO organize a world-wide technical conference to co-ordinate and promote the development of forest-tree improvement techniques, the mass production of improved planting stocks, and the application of such techniques and materials on a scientific and rational economic basis. It also recommended adoption of an international agreement to facilitate exchanges of breeding stock, especially for experimental purposes.

Forest Protection. Research was strongly recommended to determine the fundamental factors responsible for the catastrophic losses caused by fire, insects, and diseases, and to improve preventive and control measures. The need to stop the spread of dangerous diseases and insects, such as the chestnut blight and the gypsy moth, from one country to another, was stressed.

Forest Economics and Policy. Among the many topics considered, special emphasis was placed on the conversion of old-growth forests to managed stands, on the significance of economic factors in the formulation of forest policy, and on the management of small woodlots. With respect to the latter, the Congress recommended intensive education and various forms of public assistance as the most acceptable approach for obtaining improved management.

Education. The Congress emphasized the need for trained men at both the professional and the technical levels, especially in tropical countries. It recommended the establishment of strong regional centers for education and research in areas of emerging activity, and that FAO and other appropriate agencies consider favorably requests for assistance with financing and staff. It further recommended that FAO organize and conduct regional seminars for the exchange of information among foresters from ecologically similar regions, and that forestry schools prepare teachers and technologists to staff missions abroad sponsored by FAO and other agencies.

Forest Products. The Congress recognized that the multiple-use concept of the forest has a counterpart in the diverse use of forest products. Stress was placed on the importance of improvement in wood quality through genetics and silviculture, of more effective preservation of wood from decay, and of expanding the chemical utilization of wood. Recommendations included the widening of all aspects of forest products research by governments, educational institutions, and private agencies.

Forest and Range Watersheds. The Congress agreed that forest and range management have an important influence on erosion and on the amount and timing of water run-off, and that shelterbelts have proved effective in reducing wind erosion and evaporation and in ameliorating local climate. It recommended that the watershed, drainage basin, or catchment area be regarded as the primary land division for management planning purposes, and that

foresters participate actively in such planning.

Forest Recreation and Wildlife. Wildlife was recognized as an integral part of the forest and recreation as an important and rapidly growing use. Governments should take cognizance of these facts in multiple-use planning.

Logging and Forest Operations. Although recognizing that the techniques of logging can seldom be successfully transposed from one region to another with different forest, social, and economic conditions, the Congress felt that the exchange of experiences does develop basic principles which are helpful everywhere. Among these is the necessity for advance planning based on adequate timber inventories, anticipated costs and returns, and the silvicultural and protective requirements necessary to maintain a high rate of productivity. The Congress was deeply concerned with the recruitment, training, safety, and welfare of forest workers, and recommended increased efforts in these fields by international agencies, governments, employers' organizations, and workers' groups.

Tropical Forestry. The Congress was presented with a somewhat gloomy picture, not unanimously accepted, of declining tropical forest resources, lack of responsible management of large areas, and high production costs. It was concluded that the most satisfactory system of land tenure in many countries is a combination of government control and the delegation to private interests of some of the responsibilities of ownership. The Congress recommended that the United Nations Organization grant financial and technical assistance immediately to countries faced with serious problems of shifting cultivation and deforestation, and that experts in international organizations take steps to assist underdeveloped countries in the identification of areas which should remain forested.

A striking feature of the conclusions of the Congress was that, in every field, they were accompanied by recommendations for more, and ever more research.

Exhibits, Tours and Parties

The activities of the Congress were by no means confined to the formal sessions. More than a hundred exhibits pertaining to forestry, forest products, and conservation and some 75 motion-picture films were displayed at the College of Forestry building on the University of Washington campus. The exhibits included displays of literature, photographs, charts, maps, forestry and conservation postage stamps, wood samples, fire-control equipment, a miniature of a tree-farm operation, and large booths containing illuminated slides. A "Conservation Car" furnished by the Canadian Forestry Association containing exhibits and motion-picture equipment was placed on a railroad siding on the campus and attracted much attention.

An outstanding equipment exhibit provided by some 60 leading manufacturers and distributers of forestry, logging, and wood-manufacturing machinery and equipment (including several firms from Canada, Austria, and Switzerland) was on display at the University stadium. Among the items shown were the latest designs in compasses, stereoscopes, weed-tree killers, brush cutters, fire pumps, chain saws, logging arches, crawler tractors, bulldozers, skyline and loading cranes, slab barkers, automatic saw carriages, and timber sorters.

Pre-Congress, in-Congress, and post-Congress tours attracted many participants. Two and a half days during the Congress were set aside

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for trips to nearby points of interest. These included visits to the Snoqualmie National Forest, Rainier National Park, Seattle's Cedar River Watershed, the University of Washington's arboretum and experimental forests, tree nurseries, tree farms, logging operations, sawmills, pulp and paper plants, and plywood mills. Perfect weather during the second week of the Congress added greatly to the enjoyment of the full-day trips. So, too, did the opportunity for occupants of the same bus to get better acquainted with each other.

Pre-Congress and post-Congress trips to all of the major forest regions of the United States and to British Columbia provided an opportunity, which was much appreciated by those from other countries, to see something of forest conditions and forest practices outside of the Pacific Northwest. Each trip was under the personal guidance of a local forester who was thoroughly acquainted with the region.

From the opening receptions by the delegation of the United States and by President and Mrs. Odegaard of the University of Washington to the dinner given by the Mayor and City Council of Seattle, the Congress was marked by a festive round of social activities. In addition to these all-member events, there were receptions by other delegations and by forestry and industrial organizations, boat rides, a baseball game (their first for many foreigners), parties given by residents of Seattle, and innumerable lunches and dinners arranged by the delegates themselves. The generosity of the local people in opening their homes to visitors from other lands was one of the highlights of the Congress. Special attention was paid to the ladies, who not only attended all of the affairs open to the men but had shopping expeditions, lunches, teas, and tours of their own. Seattle's warm-hearted hospitality will never be forgotten by those who were privileged to experience it.

A Red-Letter Event

Was it all worth while? Did the results justify the heavy expenditures of time and money required to organize and conduct an international meeting of this size and scope, with participants from all the corners of the earth? The answer is an emphatic "Yes."

The purpose of the Congress, as stated by its President, was "to advance the science and practice of forestry in its broadest sense by provid-

ing an opportunity for the exchange of information and the development of personal associations among leaders and professional workers in forestry, as well as to stimulate and foster international co-operation in the proper development and use of the world's forest resources." Its success in achieving these objectives is a tribute of high order to its organizers, hosts, and participants. In a world torn by dissensions, foresters from 65 nations on all of the continents met for two weeks in an atmosphere of good will and of professional solidarity. Knowledge resulting from research and from managerial and administrative activities was freely shared; opinions were expressed frankly and discussed amicably. Differences in race, religion, and nationality were forgotten or ignored in the common effort to enable their profession to contribute abundantly and permanently to the welfare of mankind.

The Fifth World Forestry Congress was a red-letter event in the history of forestry, perhaps of civilization, to which it has so much to contribute.

Tao: Voice of Nature

(From page 33)

man avoids extremes and never indulges in excess one way or another."

Remember the scriptural admonition to "bend as the reed"? Tao teaches that "when man is born he is tender and weak; at death he is stiff and hard. When plants are alive they are supple and soft; when they die they are brittle and dry. Therefore, stiffness and hardness are related to death; softness and gentleness are related to life."

Amid their bottles of tranquilizers, the American people are asking, "What is normal?" If you wish to behave in a normal manner, Tao instructs us, behave as water. Water is absolutely essential to life. It can truly be said that without water there can be no life. But does water demand a fee for its invaluable service? Does it proclaim its importance? Rather, it moves quietly and always seeks the very lowest level in perfect humility. Think of this lesson when you see a waterfall, a stream cascading merrily down over smooth rock. Nature abounds with lessons such as this. Tao says so.

And so, Tao urges us to be keenly aware of Nature, to be ever watch-

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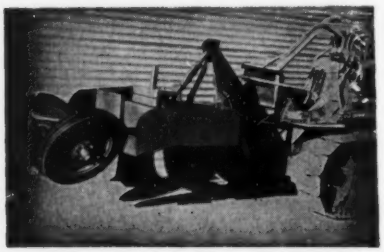

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ful for the moral lessons Nature teaches with every season, every day, every passing hour. If you share this reverence for Nature, or would like to develop an even greater awareness of its many practical lessons, it may be a rewarding experience to add the tiny *Tao Teh King* to your library. It is a very thin, humble book, but in the manner of Tao, so full of meaning that it is almost impossible to carry it with you.

Mr. Buchanan's Park

(From page 6)

bor for the construction of tables, sanitary facilities, and guard rails, as well as the labor necessary to install these facilities at the campsite. This labor exceeded 1200 man-hours. The Forest Service prepared the site plans and supplied concrete materials, signs, and supervision. Douglas Studs, Inc. provided the required lumber, road and bridge construction, well drilling, and a lot of enthusiasm.

Road and bridge construction was completed by Douglas Studs, Inc. in the fall of 1959. Then members of the Rotary Club worked during the winter assembling benches, table tops, and sanitary buildings, and installation of the facilities was completed this summer. The Forest Service accepted the campground and will provide maintenance and service.

During the Moose Creek Campground celebration, which was held on completion of the project, Mr. Buchanan commented that "the construction of this campground, like the suppression of the Higgins fire (a recent fire in the area), stands out as an example of community action. Less dramatic but more significant is the quietly working, everyday achievement of all the other multiple uses of our forest. In truth, much of how we live and how we enjoy living stems from the everyday use of our forest. The grazing, recreation, hunting and fishing, timber harvest and water production, and their administration, vitally affect our day-to-day living. We and you know that the Lewis and Clark National Forest is capably managed to make full use of all the forest resources in a balanced and fruitful manner."

Mr. Buchanan noted the presence at the ceremony of lumbermen from neighboring states and representatives of various conservation groups. He said that he was confident that

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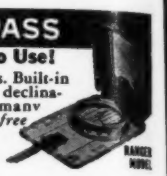

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on page 41

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these gentlemen, after seeing the happy results of community co-operation in the construction of public recreation facilities, will feel that they, too, can co-operate with local groups in the construction of similar facilities throughout the West.

In closing, Mr. Buchanan said, "It was lots of fun to work with Rotary and the Forest Service; we are ready and willing to join with some Great Falls group, in the future, in the construction of a similar camp on one of our access roads on the Great Falls side of the mountain."

Prairie Potholes

(From page 27)

effort toward this goal, most of the remaining prairie potholes, which have been the mainstay of the nation's waterfowl production, will soon be gone. . . ."

The removal of federal drainage subsidies could conceivably open up a new field of closely co-ordinated inter-agency planning for conservation of *natural* water areas for the benefit of waterfowl and wildlife of the Prairie Pothole Region.

2) Support the sale of Duck Stamps to boost the wetland acquisition-easement program of the Bureau of Sport Fisheries and Wildlife. In this newly-enacted program wetlands will be retired from waterfowl production and will supplement the wetlands preservation program of various states.

3) In several states old drainage regulations and laws have been scanned critically, with the thought that laws devised for conditions in the early 1900's (or before) may be long out-dated. Through this we can become better informed about water legislation in our own states to better advise our law makers on this subject.

4) Watershed treatment is gaining in popularity. Wetlands are important parts of all watersheds. Their water-holding capacities and non-contributing aspects to downstream flooding should be emphasized in watershed planning. Because of this and their other water resource values they should be kept intact.

5) A precedent in the history of wetland preservation was set when township zoning regulations were established against drainage of wetlands in Waukesha County, Wisconsin. The Badger State, again, was one of the first to eliminate incentive payments for drainage under their Agricultural Conservation Program

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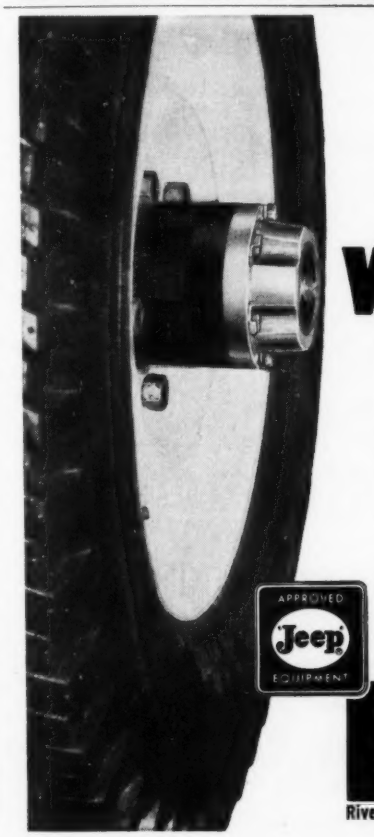

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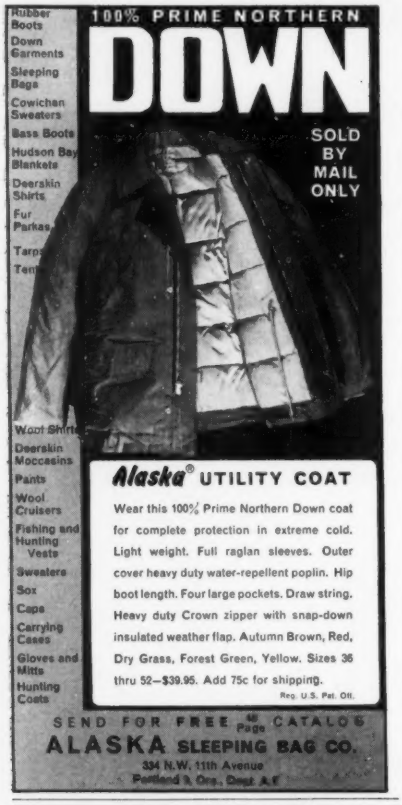

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Service. This was a move based on a long and perceptive look into the future.

6) Finally, continue your widespread support of Ducks Unlimited on their marsh restoration projects of Canada.

This touches only briefly on a few avenues of action that can be undertaken. *Much still needs to be done.*

The resource values of our nation's forests, streams, and lakes are widely known. A varied distribution of marshes in the Prairie Pothole Region likewise represents an irreplaceable water resource—a resource which is a definite part of our American heritage. When these areas are relentlessly removed, where else can we go to find them?

Parks Phase of AFA Study

(From page 23)

sic, still is lacking. Public programs, regardless of their nature and urgency, need to be preceded by thorough education of the taxpayers. Otherwise appropriations will continue to be 'too little' and 'too late.' This is an area in which lay organizations have primary responsibilities. Yet at the present time no citizens' group is giving thoughtful attention to state-wide requirements for outdoor recreation."

For many years, Mr. Pomeroy said, the state park system was forced to struggle along with minimum appropriations on areas acquired mainly as gifts from public-spirited citizens. However, after World War II, the state park program began to stand firmly on its own foundation with special appropriations in 1947 and 1949 for capital improvements. Attendance immediately jumped upward by 49 per cent. In 1959 over one and one-half million people visited North Carolina's state parks. The fees they paid for the use of overnight cabins, campsites, bathhouses, boats, and other special services defrayed about 40 per cent of the cost.

"In June, 1960," Mr. Pomeroy explained, "The American Forestry Association made spot checks at seven of the state parks. We discovered that two-thirds of campers and 85 per cent of the picnickers were state residents. About 95 per cent of visitors remained less than one day. Campers averaged one week per visit; cabin-users and those in organizational camps tended to stay two weeks, the maximum time period.

"Fees are not collected for admission to the state parks, but people pay for the use of boats, bathhouses, cabins, campsites, and other service facilities. Most of the people interviewed were entirely in accord with this practice. As one lady expressed it, 'State parks should be built by the taxpayers for everyone and supported by the people who use the facilities requiring special maintenance.'

"Sixty per cent of the people interviewed," he continued, "vetoed a suggestion that local communities share in the operation of nearby state parks. The consensus seemed to be, 'It would louse things up.' Most people felt that municipalities and the state had separate responsibilities. Each one should administer its own program but co-ordinate long-range plans with the activities of others.

"Everyone interviewed spoke well of the manner in which the state parks are being operated. When asked for suggestions, people said, 'Keep it natural,' 'Don't crowd things,' and 'Keep plenty of breathing space, that's what we came here for.'"

While the state parks have been improved greatly since World War II, there has been only a slight change in the number and total area. "As of June 30, 1960," Mr. Pomeroy said, "the state park system embraced 19,171 acres of land and 17,396 acres of water. Inasmuch as most of the natural lakes in North Carolina already are in state ownership, future additions to the park system will involve forest land."

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Rebuilding the Boise Watershed

(From page 35)

mediate and long-range relief.

Funds were diverted from other projects to carry out the emergency work necessary on federal lands. Work on key private lands was done with funds obtained under the Emergency Flood Control Act.

The Bureau of Land Management did restoration work on 1,801 acres of public domain lands. Contour trenches, partitioned by check dams every 20 to 30 feet, were constructed on 617 acres. Contour furrowing was done on 134 acres. About 200 acres (some of it overlapping other treated areas) were drilled with perennial grass and bitterbrush. Some 1,050 acres were drilled with Siberian and crested wheatgrass, and the remaining area was broadcast-seeded. The Forest Service similarly treated 200 acres of national forest lands.

The Idaho Fish and Game Department furnished bitterbrush seed to both agencies; it was planted to help restore deer browse. It will be a long and costly process to bring back vegetative cover and thereby stabilize the soil. The Soil Conservation Service, Geological Survey, and U. S. Army Corps of Engineers are giving valuable consultation to the work. City agencies have restored storm drainages, sand-bagged critical areas, and constructed catch basins. A great deal of work remains to be done on private lands.

Treated public lands will be fenced to exclude domestic livestock until vegetative cover is restored and the soil stabilized. The population of wintering deer will be reduced for the next 5 to 8 years through controlled hunts.

Losses from the August 3 fires combined with suppression costs, flood damages, and rehabilitation costs add up to a staggering sum. Following is a tabulation of the estimated losses and expenses resulting from the fires:

Loss of livestock forage on 10,000 acres	$ 6,000
Loss of top soil on 10,000 acres	65,000
Wildlife feed and cover loss	8,000
Loss of game, recreation, hunting values	Immeasurable
Loss of private property	25,000
Suppression cost BLM	20,000
Suppression cost USFS	20,000
Flood damage private property	500,000
Emergency treatment costs:	
BLM	30,000
USFS	11,000
Dept. of Agric.	38,000
Boise City	87,200
Total	$ 731,200

These disastrous effects clearly point out that few enemies of natural resources rival the destructive power of fire. It is essential that every man, woman, and child be constantly aware of the dangers of wildfire on public and private lands. Adequate fire suppression forces must be maintained at all times. Plans, forces, and equipment must be co-ordinated at local, state, and national levels.

Fire protection and suppression costs money, but it should not be considered an expense—it is an investment in the permanent productivity of priceless natural resources.

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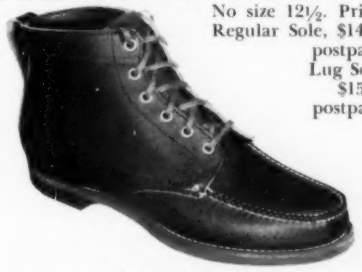

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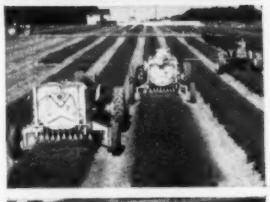

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See Christmas Letter to You

on page 41

Reading About Resources

(From page 5)

Just Weeds, by Edwin Rollin Spencer, illustrated by Emma Bergdolt. Charles Scribner's Sons, N. Y. 333 pp. $4.50.

A guide to weeds for the homeowner, this volume was originally published in 1940, but has now been expanded and otherwise revised. This is obviously for the lawn-slave and gardener who "has everything." Many of us amateurs remain more concerned by the grass that doesn't grow than by the weeds that do.

Plant Propogation, Principles and Practices, by Hudson T. Hartmann and Dale E. Kester. Prentice-Hall, N. Y. 1959. 559 pp. $7.95.

Here the reader finds not only a general presentation, but detailed information on propagating nearly 50 of the world's most important fruit and nut crops. A practical, carefully illustrated book.

Politics and Grass, The Administration of Grazing on the Public Domain, by Phillip O. Foss. University of Washington Press, Seattle, Wash. 1960. 236 pp. $4.50.

A poorly printed, excellently written review of the federal government's use and mis-use of the vast western lands in the public domain. Basic history.

How Paper Is Made, by David C. Cooke. Dodd, Mead & Co., N. Y. 1959. 64 pp. $2.25.

An elementary primer that does not reach far beyond the 8th grade child, but useful for him. The text does not warrant either the handsome format or handsome price.

Wildlife Conservation, Second Edition, by Ira N. Gabrielson. The Macmillan Co., N. Y. 1959. 244 pp. $5.50.

This fine work by "Mr. Wildlife" himself, now thoroughly revised, deserves and will find a continuing popularity comparable to that of its first edition. Gabrielson covers briefly, but with the thoroughness that comes only from a great depth of personal knowledge, all important fields of wildlife management.

World Demand for Paper to 1975, Food and Agriculture Organization of the United Nations, Rome. 1960. Distributed by Columbia University Press, N. Y. 160 pp. $1.50.

A highly scientific "guesstimate" of the increasing demands for paper expected in the coming decades. Of use only to the professional student.

Familiar Insects of America, by Will Barker, illustrated by Carl Burger. Harper Bros., N. Y. 1960. 236 pp. $4.95.

A professionally written layman's guide to the insect, one of man's best friends. The illustrations are aesthetically excellent, but photographs would have been a helpful addition. This is a subject that can scarcely be illustrated too fully. Nevertheless, the book is a good one.

High Sierra Mountain Wonderland, by Joseph Wampler and Weldon F. Heald, with one chapter by Charles McDermand. Published by Joseph Wampler, Box 45, Berkeley 1, Calif. 1960. 122 pp. $2.00.

A general geographical study with wildlife overtones of the high country of the Sierra Nevada of California. "How to" chapters give practical hints for the visitor. A competent guide book with two easily-read maps.

The A.M.C. White Mountain Guide, Sixteenth Edition. Published by the Appalachian Mountain Club, Boston, Mass. 1960. 494 pp. $4.50.

A more precise handbook than the Sierra volume noted above, better by far for hikers but of little general interest.

A List of Common and Scientific Names of Fishes from the United States and Canada, Second Edition. Special Publication No. 2, 1960, of the American Fisheries Society. 102 pp. $1.00 for paper; $2.00 for cloth.

A professional reference work, essential in its field.

Metropolis and Region, by Otis Dudley Duncan, William R. Scott, Stanley Lisberson, Beverly D. Duncan, and Hal H. Winsborough. Johns Hopkins Press, Baltimore. 1960. 600 pp. $8.50.

A Resources for the Future publication, this is a study of the modern metropolis in its physical and economic relationships with the whole of the United States. Very likely a landmark book, bold in its concept and exhaustive in its treatment.

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Woodsman! Spare Those Birds

(From page 31)

tain their balance during the banquet which seemed at times to take on the aspects of a battle royal. The sounds were indescribable, ranging from the shrieks of an anguished spirit to the oinking of frightened hogs at slaughter time.

The fervor with which the birds compete for their food is a mistake, for there was a thud as half the fish slipped away and fell to the ground —irretrievably lost, for the birds know better than to venture down among the tangle of tree limbs and twigs to reclaim their meal. It turned out to be a rare feeding at which a portion was not dropped in the scramble, and the ground was littered with fragments of fish.

Evidence was to be seen of the hazards which the tree limbs hold for the ungainly birds. The remains of one nearly-grown bird hung grotesquely by the neck from a tree fork as a warning of what can happen when a young heron slips from its nest or perch.

After two minutes of feeding, climaxed by the loss of half a fish, the mother bird flew away once more for another round trip of 12 miles to the shallows along the lake where it's easiest to stand, knee deep in water, and spear the unsuspecting quarry. Meanwhile, another bird arrived and a rasping chatter began in a nearby tree. This takes place at intervals of no more than five minutes throughout the day, although feeding activity is at its peak in the early morning and late evening. The smaller birds were fed by the regurgitation method whereby the food is half-digested by the mother before being fed to the baby. The larger offspring were permitted to tear into the whole fish with the results described.

The power company's bird-watching committee came away from the woods convinced that they had done the right thing when they decided to spare this remarkable colony of herons.

Trying to photograph these birds from the ground is not easy. Because the trees are so tall, a telephoto lens is necessary. And although there are at least twenty-five nests in the surrounding trees, all but two are half-hidden in the foliage. Watching these exposed nests, it turns out to be something like a game of roulette, with the odds rigged substantially against the photographer. Finally, when a bird does arrive at the nest on which he is concentrating, there is a split second in which to snap the shutter while the wings are still gracefully outspread.

Obviously, the great blue heron is among the shoddiest nest builders in the feathered kingdom. But despite careless construction and the height at which they are built among the swaying branches, the nests seem to stand up remarkably well against the elements. Sometimes, however, a limb will be broken off in a storm and will come crashing down, complete with nest and birds, in one of the many tragedies with which wildlife has to contend.

Aside from an occasional broken nest, decaying fish, and bird skeletons, the ground bore other evidence of heron habitation overhead. There were many long blue-gray feathers and a number of broken eggs, pale blue flecked with white, about the size of chicken eggs. The droppings beneath the nesting trees, together with the rotting fish, left an unpleasant stench.

In flight, the great blue heron is the very picture of grace; a symphony of motion with wings that move slowly but ponderously. For all its size, this is an agile bird which alights on the topmost swaying branches of a tall tree with an ease that belies its considerable weight. One must look far in the wonderful world of nature to find a more perfect picture of nonchalance than that presented by a heron, whether perched in a tree top or standing motionless in shallow water waiting for an unwary fish to swim by.

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fish discovers too late that the heron wasn't dozing, and the cautious human who strives for a close-up look at one of the big feathered creatures soon learns to be satisfied to do his looking through a powerful telescope. At the first sign that he is being observed, the heron takes wing and flies to shelter in the nearest woods, his long neck arched gracefully and his legs extended behind him.

But for all the heron's wary nature under normal circumstances, he becomes actually oblivious to the human presence at nesting time. It is possible then to create the noisiest commotion on the ground without eliciting so much as a nervous quiver from the big birds in the topmost branches overhead. At mid-day when activity was lacking, and I desired a picture of several birds in the air at once, I tried to distract them by shouting, whistling, and banging on a tree trunk, but the herons—so shy in other surroundings and at other seasons—stood majestically aloof and pretended not to notice even though the woods literally echoed with the racket I had created.

How rare are these birds to which the Ohio Power people accorded such consideration? It is probably true that not one out of 100 Ohioans has ever seen a blue heron to recognize it. Yet it is discovered that they are living unmolested, although not in great numbers, in the heavily wooded areas bordering the numerous man-made lakes which have been developed in the state during the past quarter-century; they also appear along Lake Erie to the north.

That they are not often seen is a tribute to their successful passion for anonymity. One boy living near the Whitehead farm said a pair of the birds made their home near a small farm pond a mile away. Aside from a handful of naturalists, who make it their business to uncover such unusual phenomena as heronries, only a few farmers living in the immediate area knew about the nesting place.

Discovery of the heronry on the Whitehead farm was made by the tree-cutters in late June. It was not until early August that the last of the young birds had flown the nest and the woodsmen moved in, followed by the pole-setters and the line-stringers. A few of the nesting trees were outside the power company's right-of-way, and it remains to be seen if the birds will return to them next year.

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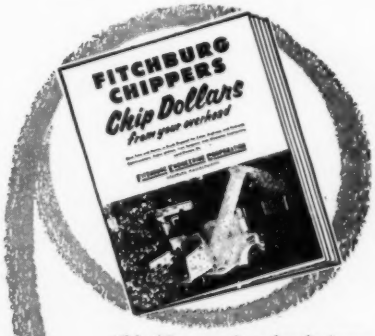

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Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected, AMERICAN FORESTS *will pay $10*

Photo by E. John Long, Coral Gables, Florida

What do birds do when hurricane winds howl? This southern downy woodpecker clung to the lee side of a tree at the height of Hurricane Donna in South Miami, Florida, when the hurricane was blowing at nearly 100 miles per hour. The bird remained in this position, using claws and tail for support, until winds abated to something near its flying capacity. Picture was taken from a kitchen window.

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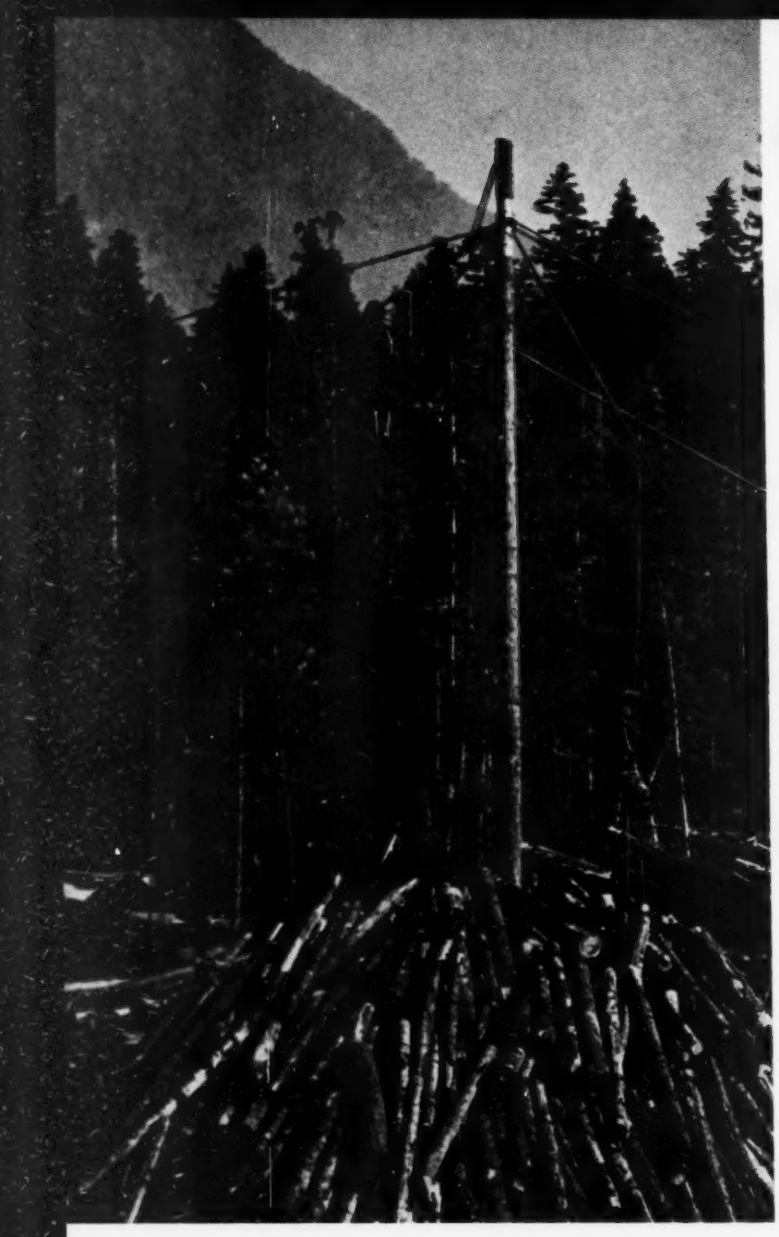

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**Data from 1959 survey, "The Woodcutting Industry." Details on request.*

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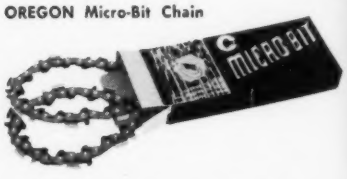

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